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Politics this week

Mar 6th 2008
From The Economist print edition

Reuters

Hillary Clinton halted the momentum built up by **Barack Obama** over the past month by winning primary elections in Ohio and Rhode Island by double-digit margins and in Texas's primary by rather less. Democrats in Texas held a smaller caucus as well as a primary, which Mr Obama appeared to have won along with a primary in Vermont. With no clear front-runner, the race for the Democratic nomination is back on. The next big contest is in Pennsylvania on April 22nd. See article

There was no such indecisiveness from the Republicans; **John McCain** won enough delegates to deliver him the party's nomination when he cruised past Mike Huckabee in all four states up for grabs on March 4th. Afterwards, the senator from Arizona paid a visit to the White House to receive an endorsement from his former nemesis, George Bush. See article

The **Grand Canyon** was flooded for the first time since 2004. Glen Canyon dam, which impounds the waters of the Colorado river, was opened for several days starting on March 4th in order to replenish the river's sediment levels. Lack of sediment has meant that local fish species have become extinct and the Grand Canyon's beaches have been severely eroded. See article

Measure for measure?

Israeli forces withdrew from the **Gaza Strip** after five days of ground and air attacks on Palestinian fighters who had been firing rockets into Israel. More than 100 Palestinians, including non-combatants and children, were killed, for the loss of two Israeli soldiers. Meanwhile, a group of aid agencies issued a report which said that Israel's present blockade of Gaza had created the worst humanitarian crisis there in 40 years. See article

Most of the **Turkish** forces that invaded northern **Iraq** last month to hit guerrillas of the Kurdistan Workers' Party (PKK) withdrew to Turkey, claiming to have severely weakened them.

Iran's president, Mahmoud Ahmadinejad, became the first regional head of state to visit Baghdad since the American invasion of **Iraq** five years ago, underlining his country's growing influence there. See article

The United Nations Security Council imposed a third, more punishing, range of sanctions against **Iran** for failing to stop enriching uranium.

A bit of a farce

AP

Colombian forces bombed a guerrilla camp just across the border in Ecuador, killing one of the FARC's senior commanders. Venezuela and Ecuador broke diplomatic relations and sent troops to their borders with **Colombia**; Colombian officials said the dead rebel's laptops revealed that Venezuela was collaborating with the FARC. The Organisation of American States (OAS) criticised Colombia but did not formally condemn it. The OAS set up an investigative committee. See article

A Venezuelan businessman pleaded guilty in a Florida court to charges of acting as an unauthorised foreign agent. He was one of five people charged by prosecutors with trying to cover up an alleged donation of $800,000 by **Venezuela's** government to the election campaign of Argentina's president, Cristina Kirchner.

Defying forecasts that their grip would weaken, **Alberta's** ruling Conservatives won a landslide victory in the oil-rich Canadian province they have governed since 1971.

The new China crisis

China's prime minister, Wen Jiabao, opened the annual session of China's parliament by giving warning of the dangers of inflation and of fallout from America's subprime crisis. He also proposed the creation of new super-ministries to overcome bureaucratic obstacles to reform. See article

A court in **Pakistan** dropped corruption charges against Asif Zardari, widower of Benazir Bhutto, the assassinated former prime minister. The secular Awami National Party reached a power-sharing agreement with Ms Bhutto's Pakistan People's Party in the North-West Frontier Province, paving the way for them to take over in a coalition from an alliance of six Islamist parties, which fared badly in Pakistan's recent election.

Nepal's government signed a peace accord with an ethnic alliance, settling a strike that had paralysed the south of the country. The accord paves the way for elections to the constituent assembly that are due to take place on April 10th. See article

In its 2008 budget, **India's** government said it would cancel the debt of 30m small farmers at a cost of 600 billion rupees ($15 billion). The budget also increased spending on education by 20% and on health by 15%. See article

AFP

America said its troops were being allowed to use the Termez airbase in **Uzbekistan** again on a limited basis. The Americans were banned from using it in 2005.

Hollow victory

Dmitry Medvedev was confirmed as **Russia's** new president, as expected, by the country's electoral commission, which proclaimed he had won 70% of the ballot in an election on March 2nd. Mr Medvedev was endorsed by Vladimir Putin, the outgoing president. The Kremlin denied allegations of vote rigging. See article

Russia's state-controlled gas monopoly said it would resume regular natural-gas supplies to **Ukraine** after reducing its deliveries by half because it said it was owed back payments.

At least eight people were killed in **Armenia** when security forces suppressed protests by opposition activists over alleged fraud in presidential elections. There were also clashes between Armenian and Azerbaijani forces in the disputed Nagorno-Karabakh region. See article

Ian Paisley announced that he was stepping down as **Northern Ireland's** first minister and as leader of the Democratic Unionist Party, which he has led for nearly 40 years. Mr Paisley had been a bitter enemy of the province's Irish nationalist parties until only recently, when he led (some would say dragged) the DUP into a power-sharing deal with Sinn Fein. See article

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Business this week

Mar 6th 2008
From The Economist print edition

The supervisory board of **Porsche** gave the go-ahead for the company to increase its stake in **Volkswagen** from 31% to more than 50%. Although Porsche stressed this would not lead to a merger, it would bring the two carmakers together under the leadership of Ferdinand Piëch, who is VW's chairman and a controlling shareholder in Porsche. Earlier, VW tied up another loose end when it bought a majority stake in **Scania**, a Swedish truckmaker. VW has been trying to forge a merger of its commercial-vehicles division with Scania and **MAN**, a separate truckmaker it also controls, for the past 18 months. See article

Ben Bernanke said that the "pervasiveness of negative-equity positions" was underlying the downturn in America's **housing market** and urged lenders to forgive some mortgage debt. The Federal Reserve chairman's suggestion puts him slightly at odds with Hank Paulson, the treasury secretary, who prefers less drastic measures, such as banks' renegotiating mortgage payments.

The sage of Omaha

Warren Buffett declared that "by any common sense definition" America was already in a "recession" and that the housing slump was hurting. Mr Buffett, crowned this week as the world's richest man, also withdrew his recent offer to reinsure three troubled bond-insurers to the tune of $800 billion. "We tossed our hat into the ring and they tossed it right back," he said.

Meanwhile, **Ambac** announced a plan to raise $1.5 billion in capital as part of its effort to retain its AAA rating. Analysts said the bond insurer needed to do more. **Municipal-bond markets** continued to rally, however, on the news that Wilbur Ross and Bill Gross, two big investors, were ploughing money into municipal bonds that are being sold-off cheaply.

Investors were perturbed by the sudden collapse of **Peloton Partner's** star hedge fund, which had bought assets priced at a discount during the credit squeeze in the belief they were a good bet. The London-based fund also blamed tighter lending conditions by banks for its woes. So far, hedge funds have managed to avoid the worst of the fallout from the subprime market.

Air force won

America's air force awarded a controversial $35 billion contract for new flying tankers to the KC-30, a joint effort from **EADS** and **Northrop Grumman**. **Boeing's** 767 programme had been tipped to win the deal. EADS is the parent company of Europe's Airbus, Boeing's arch-rival. Some American congressmen greeted the news with howls of protest, though not those from Alabama, where the tanker is to be assembled.

Yahoo! extended the deadline for nominating members to its board, a move that gives it more time to explore alternatives to **Microsoft's** takeover offer. Microsoft was expected to launch a proxy contest to nominate a slate of directors to the board before the previous deadline of March 14th.

There were more poor earnings from the insurance industry. **Swiss Re's** quarterly net profit fell by 87%, compared with a year ago, because of subprime losses. And **AIG** posted a $5.3 billion quarterly loss on the back of write-downs it flagged last month. It was the biggest-ever such loss at AIG, which traces its history back to 1919.

Peter Lynch, a legendary investor, agreed to pay $20,000 to settle allegations that investments he directed while a manager at Fidelity, a mutual-fund company, were swayed by the free tickets for concerts and golf tournaments he was given from other businesses. See article

Currency asset?

In what looked like a co-ordinated effort, some European finance ministers expressed their concern at the relentless climb of the **euro** against the dollar (it has also risen against other currencies, including the pound and the yen). The European Central Bank has come under fire from some quarters for the euro's ascent, which is blamed for hampering the prospects for growth and weakening Europe's exports. See article

OPEC's members agreed to stick to today's levels of oil production. With **oil** trading at well above $100 a barrel, the cartel had faced calls to raise output to ease oil prices.

The fashion for consolidation in the mining industry continued when **Oxiana** agreed to buy **Zinifex**, its Australian compatriot, for A$6.1 billion ($5.7 billion) to create the world's second-biggest producer of zinc.

Diebold rejected a $2.6 billion takeover bid from **United Technologies**. Diebold makes cash machines and security systems, but is best known for electronic voting machines, a relatively small part of its business. Conspiracy theorists had a field day when some Diebold gizmos malfunctioned during an election in California in 2004.

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KAL's cartoon

Mar 6th 2008
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Illustration by Kevin Kallaugher

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India's economy

What's holding India back?

Mar 6th 2008
From The Economist print edition

Failure to reform a bloated civil service is putting the country's huge economic achievements at risk

Get article background

"THE tiger is under grave threat," India's finance minister, Palaniappan Chidambaram, intoned at one point in his budget speech on February 29th. He was referring to the stripy animals that prowl the country in declining numbers. But India's tigerish economy, which has grown by 9% a year on average over the past three years, is itself under threat.

In many ways India counts as one of liberalisation's greatest success stories. For years, it pottered along, weighed down by the regulations that made up the licence raj, producing only a feeble "Hindu" rate of growth. But over the past 15 years it has been transformed into a far more powerful beast. Its companies have become worldbeaters. Without India's strength, the world economy would have had far less to boast about.

Sadly, this achievement is more fragile than it looks. Many things restrain India's economy, from a government that depends on Communist support to the caste system, power cuts and rigid labour laws. But an enduring constraint is even more awkward: a state that makes a big claim on a poor country's resources but then uses them badly.

The state's cage

It is not unusual for a country's bureaucrats and politicians to be less efficient than its businesspeople; and the Indian civil servant, with his forms in triplicate, has been a caricature for so long that it is easy to forget the impossibility of many of the jobs involved (see article). But India's 10m-strong civil service is the size of a small country, and its unreformed public sector is a huge barrier to two things a growing population needs. The first is a faster rate of sustainable growth: the government's debts and its infrastructure failings set a lower-than-necessary speed-limit for the economy. The second is to spread the fruits of a growing economy to India's poor. By the government's own admission, most development spending fails to reach its intended recipients. This is bound to stir up resentment—and risks causing a backlash against business.

Like his prime minister, Manmohan Singh, Mr Chidambaram is by instinct a liberal and a reformer. He is remembered for his "dream budget" of 1997, which cut both taxes and tariffs—and helped spur today's boom. The new budget is his government's final one before it calls a fresh election, probably later this

year. He gave an assured performance, doling out money freely and leaving voters appeased, opposition parties stumped and bondholders unruffled (see article). But the budget also confirmed several sad truths about how little reform the government has made during the good years.

Take the public finances. The government is predicting a budget deficit of 3.1% for the current fiscal year and 2.5% next. But these numbers are artificially low. They omit the states' deficits and also most of the cost of fertiliser and fuel subsidies (which all told add another 3.5% of GDP). Other big emerging markets have been less complacent, leaving India in the worst fiscal shape of the lot.

If growth slows, so will tax collection—and India's vigour may be ebbing already. Growth of 9% now looks more like a cyclical peak than a permanent achievement: bottlenecks throughout the economy mean it cannot go faster without setting off inflation. The effects of overheating became clear in an inflationary scare early last year. Growth has since slowed a tad, to 8.4% in the year to the fourth quarter, thanks partly to the intervention of a nervous central bank. India cannot absorb a lot more foreign capital without worrying about stockmarket turbulence or the strength of the rupee. Much of the foreign money it has attracted has gone into inflating share prices or just accumulated unproductively in foreign reserves.

The government's other boast is to have fostered "inclusive growth". In his budget, Mr Chidambaram duly handed out extra money to a long list of worthy schemes, from school meals to rural road-building. But as he himself conceded, outlays and outcomes are not the same thing. Standing between the two is an administrative machine corroded by apathy and corruption. The government's subsidies fail to reach the poor, its schools fail to teach them and its rural clinics fail to treat them.

Mr Singh made administrative reform a priority when he took office in 2004, and he duly set up a commission to look into it. But even the finance minister admits that most of its deliberations have been academic. The civil service is expected shortly to be awarded a huge pay rise, which will be swiftly embraced, along with tougher performance standards, which will be studiously ignored. One indication of officials' resistance to change is Mr Chidambaram's new proposal to erase the debts of 30m small farmers. This loan waiver may be costly (over 1% of GDP) and crude, but it has one big virtue: it transfers money to relatively poor people at the stroke of a pen, bypassing the cumbersome machinery of the state.

Unleash peepul power

Reform has not completely petered out. The government has called for more independent scrutiny of public programmes and better monitoring of the money it hands out to some 1,000 schemes. It also plans to experiment with "smart cards" for the poor that could cut out bureaucratic middlemen. But administrative reform needs to go deeper than this—if only to prevent the public sector throttling economic growth.

The government's debt burden leaves it short of money for infrastructure. It is reluctant to free banks, pension funds and insurers to serve the market better, because it needs them to buy its bonds. The miserable record of its social spending deprives firms of well-nourished, well-schooled workers, and saps the political will for reform. State governments are left scrabbling to appease rural disgruntlement rather than investing in efforts to lift the productivity of land and labour.

The tiger may be the animal most Indians associate with their private sector; but a more apt symbol is the peepul (sacred fig) tree. Revered by many Indians, the peepul has a habit of making room for itself, poking up through roads, sometimes smothering its rivals. India's dynamic private sector has shown a similar skill. But if the next government again flunks reform, it could be the peepul itself that is smothered.

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Latin America

The war behind the insults

Mar 6th 2008
From The Economist print edition

The real enemy is the FARC guerrilla group and its Venezuelan supporter, not Colombia

Get article background

THIS week it has seemed to the casual eye as if northern South America were on the brink of war. It began when Colombian forces bombed a camp just inside Ecuador, killing 21 FARC guerrillas including Raúl Reyes, a top commander. Venezuela's president, Hugo Chávez, chose to treat this as a *casus belli*. He broke off diplomatic relations and ordered troops to the border, warning Álvaro Uribe, Colombia's president, not to try anything similar against Venezuela. Ecuador's Rafael Correa, cautious at first, felt obliged to mimic his fellow leftist, breaking ties and moving troops up to his border.

So far the three leaders have fired nothing deadlier than epithets ("genocidal", "liar" and "lackey" were the small arms of this verbal battle). Yet this is the most serious diplomatic conflict in South America for more than a decade. Political brinkmanship could easily tip over into shooting.

Its root cause is the FARC, a guerrilla army founded in the 1960s whose anachronistic Marxist language conceals its degeneration into a predatory mafia of kidnappers and drug traffickers. In the 1990s it came close to making Colombia ungovernable. Then three years of talks—during which the FARC kidnapped many of the hostages who now constitute its main weapon—showed that it had no interest in peace or democracy. Colombia's elected leaders turned to the United States for military aid to match the cash that American drug consumers were giving the FARC and other mafia armies.

Thanks to this aid and its own defence build-up, Mr Uribe's government has reduced the FARC, driving it deep into Colombia's jungles. But as long as the FARC's seven-man leadership remained at large, several of them apparently in camps across the borders, the guerrillas could claim to be winning—and so they have rejected genuine peace talks. That was why Mr Uribe authorised the bombing raid that killed Mr Reyes.

Was he right to do so? One objection is that Mr Reyes was involved in talks to free FARC hostages, including Ingrid Betancourt, a Colombian who also holds French nationality. But weakening the FARC is more likely to free more captives (including Ms Betancourt). A second complaint is weightier: Colombia should have sought Mr Correa's consent before acting. But would the Ecuadoreans have tipped off the FARC? Colombia claims to have recovered Mr Reyes's laptops and says their contents point to connivance (see article).

The Organisation of American States criticised Colombia, but did not condemn it outright as Ecuador wanted. Certainly Colombia should make a full apology. But in return it deserves greater co-operation from its neighbours. In a democratic South America there is no place for the FARC. But Mr Uribe has been better at security policy than at diplomacy. If some governments mistakenly see him merely as George Bush's proxy in their backyard, that is mainly because Colombia has failed to win wider sympathy for its beleaguered democracy.

Danger: one imploding Venezuelan

The biggest threat in the region is not Colombia but Venezuela. Mr Chávez has recently veered towards outright support for the FARC. Colombia alleges that the captured laptops show that he gave the guerrillas $300m (and also that the FARC is seeking uranium for a "dirty" bomb). Mr Chávez's mismanagement of Venezuela's oil boom has made him increasingly unpopular at home. His regime runs

a risk of imploding. A cornered Mr Chávez might think of a border skirmish as the perfect distraction—and as justification for more repression at home. Even as they scold Mr Uribe, Brazil and other South American countries should warn Venezuela that it is destabilising the continent—and it is high time it stopped.

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Conservation

Use them or lose them

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Trade bans are a blunt tool for saving endangered species

AFP

ELEPHANTS have become such a pest in South Africa that the government wants to shoot some. That looks like a victory for conservation, albeit a bittersweet one. Almost 20 years ago the population of the African elephant was collapsing and the world banned the ivory trade. If today there are enough elephants to shoot, isn't it time to rescue the rhinoceros and save the tiger and countless other endangered species, by redoubling the effort and getting the ban on trading them to work too?

Not if you care about wildlife, it isn't. That is partly because the story of the elephant is not all it seems, and partly because the best way to save a species is to make it valuable to people who may have other uses for the land. Although short-term bans can give a breathing space to species in the direst straits, in the long run they will not save anything. They may even make the situation worse.

The collapse in elephant numbers during the 1980s mostly took place in Tanzania, Zambia, Sudan and what was then Zaire. They seem to have resumed their fall across large parts of Africa—indeed, one expert told America's Congress this week that the illegal ivory trade is increasing. In some parts of Africa poaching is now as bad as it ever was (see article). In Botswana and South Africa, where elephants thrive today, they thrived before a ban existed. It is hard to argue that stopping the ivory trade has permanently transformed the elephant's future.

Other trade bans offer an equally pessimistic lesson. In the past few decades, the black rhino has become extinct in 18 countries where they were common, and populations have fallen fast in many others. The message is the same with the tiger and the Yangzi river dolphin. Even when a ban coincides with a fall in consumption, as with ivory, demand—and thus poaching—has a habit of coming back.

The idea of a ban is seductive, because it mobilises public support in rich countries and it can be shackled to a campaign to reduce demand. Yet bans have many shortcomings. They are vulnerable to the constant need to spend money enforcing the restrictions on trade. Poaching is hard to control and is usually a low priority for the police and the army. And if demand remains rampant, as with rhino horn and tiger bone, prices rise and the ban becomes a way for illegal traders to make a lot of money. In recent years the business has increasingly involved gangs of criminals that are almost impossible to eliminate. Better forensic techniques are helping to track down the sources of some wildlife seizures, but corruption and inertia mean that successful prosecutions are rare.

Moreover, species are dying off for many reasons—trade is not even the most important. Wildlife is threatened by the loss of land, fragmentation of habitats, deteriorating ecosystems and invasive foreign species. Something as blunt as a trade ban is poorly equipped to sort all of that out. For instance, the leopard and Goffin's cockatoo are seen as pests by local people in sub-Saharan Africa and the Indonesian island of Tanimbar. A trade ban means that endangered animals have no value. That encourages

landowners and land users to kill the animals or to allow them to be killed or to die off through neglect.

A better policy is to make wildlife more valuable to man, not less. One way that suits everybody is tourism. The gorillas in the Virunga mountains of Rwanda attract a lot of money from visitors. They are doing well, unlike their cousins over the border in Congo which do not earn their keep, and are prey to hunters who want to clear them out and take their land. Tourism is one way to help the Indian tiger, which is much rarer than people thought.

A second, less popular way to make money is to exploit animals sustainably. Killing individual creatures need not harm populations. Many animals may be farmed or ranched to create a valuable legal trade. That is what has happened with the vicuña, and with crocodiles and their kind. Rhino horns can be cut off without even killing rhinos.

The cull of the wild

Yet the potential for sustainable exploitation is untapped. Although governments, greens and consumers have embraced the sustainable use of resources, including wildlife, the killing of large, attractive species keeps being shelved at the meetings of CITES, the Convention on International Trade in Endangered Species of Wild Fauna and Flora. Animal-welfare groups are more concerned with harm to individual animals than with the survival of entire species, so they do not want any animals killed at all. Conservation groups worry that sustainable killing is hard to sell to their members. A disappearing species is good for fund-raising; blood on your hands is not.

Sustainable exploitation is not easy and it will not always work. To start with, you need a valuable product. You need the rule of law and government backing. Local people must feel secure in their ownership of the animals and what they produce if they are going to put in the effort to manage and protect them. But exploitation has a crucial edge over straight bans: it earns money. And that is why it can save animals.

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The credit crunch

Mark it and weep

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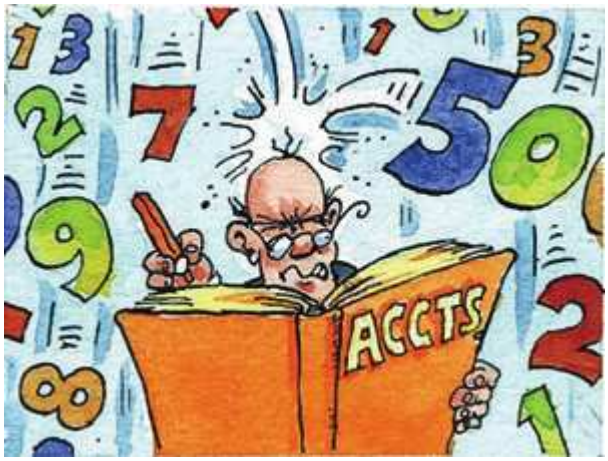
Mark-to-market accounting hurts, but there is no better way

Illustration by David Simonds



WITH memories of their drubbing in the dotcom bust still fresh, accountants have kept their noses clean in this financial crisis. Once again, though, they are being dragged into the fray. That is because they are enforcing fair-value accounting, in which assets must be marked regularly to the market price: that is, what they would be expected to fetch right now in a sale. Regulators and bankers fear that this "mark-to-market" approach is helping to turn a liquidity crisis into a solvency one. As holders of mortgage-backed securities and the like revalue their assets at fire-sale prices, they are running short of capital—which can lead to further sales and more write-downs. Are the beancounters ensuring a crash?

All accounting regimes are flawed, and fair-value is no exception. It is timely and transparent, but when markets collapse, prices become less reliable. How do you mark to market when there is barely any market? Some firms rely on credit-derivative indices, but these are far from perfect proxies (see article). Others cling to internal computer models, but their accountants are cracking down on them. Banks are also being asked by their auditors to put more assets into the fair-value regime's lowest bucket (for the most illiquid assets). This adds to their woes, since such assets carry a higher capital charge.

Regulators worry that mark-to-market may create a "liquidity black hole". Nerves jangle at every fire-sale, for fear that this will become the new benchmark for sticky assets. The fear is that value-at-risk systems force investment firms and banks to offload securities, leading to price falls and further sales. The temptation is to sell now, before the next lurch down. The result will be excessive write-downs—as the stable value of assets is above today's distressed level.

That is a damning list of failings. And yet, for all its pain, fair-value accounting is still the best way to value businesses. Especially if investors and regulators treat accounting rules sensibly: as a measuring stick, not a source of universal truth.

On that score the old system of historic-cost accounting was worse. In a crisis prices fall until bottom-fishers start to buy. Yet when assets were booked at their original price, rather than the market one, banks could delude themselves—and investors—that dross was gold. Under historic-cost accounting, the banks had every reason not to restructure assets, because that meant owning up to their losses. Look at Japan, where the economy was sunk for most of the 1990s by stagnant loans to "zombie" companies. Historic-cost left investors in the dark about valuations; it was also prone to fraud and fraught with moral hazard, since sloppy lending went unpunished.

The sticky end

Mark-to-market does not have to be as bad as its critics fear. Not everyone has gorged on toxic assets, and not everyone has to mark to market. This biodiversity means there will be buyers, even in the most strained markets, at the right price. Sovereign-wealth funds have poured money into troubled banks. This week PIMCO, a big fund manager, bought $1.5 billion of American municipal bonds, where yields have jumped as the crisis spread. Warren Buffett is also sniffing around.

The place for regulators to be subtle is not in reporting the figures, but in dealing with the problems they reveal. The task is to make markets resilient when the cycle turns. Central banks could offer more protection against crises in liquidity (see article). Thicker buffers could be built into the Basel II framework for bank capital. Securitised assets could be hauled from murky over-the-counter markets to exchanges, where values are clearer. Models for valuing complex securities will be refined. And regulators and accountants could ease up when banks risk a liquidity spiral—as in Europe in 2002, when insurers faced a solvency crisis over falling share prices.

It would be perverse to ignore market signals when finance is increasingly based on broad capital markets. Fair-value accounting is indeed flawed. To paraphrase Winston Churchill, it is the worst kind of accounting, except for all the others.

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After Texas and Ohio

The Democrats' nightmare

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From The Economist print edition

Expect the battle between Hillary Clinton and Barack Obama to become even more hellish

Reuters

Get article background

REMEMBER hanging chads, butterfly ballots, dodgy voting-machines and an election mired in the Florida swamps? Something similar to the 2000 knife-edge election has now befallen the Democratic Party, thanks to a contest that is likely to get increasingly nasty, and quite possibly litigious. And Florida is again in the thick of it.

For the second time in this campaign, Hillary Clinton cheated electoral death on March 4th (see article). Had she lost in Texas and Ohio, there is little doubt that her quest for the White House would have ended. By soldiering on despite a run of bad news and in defiance of doomsayers even inside her own camp, Mrs Clinton has shown a degree of gritty determination that is compelling waverers to think again.

But the fact remains that even after her wins this week, she is well behind in the race for elected delegates, by roughly 1,360 to 1,220. That might not sound that much. But delegates are awarded proportionally and there are now only ten states left in play, some of them favourable to Barack Obama. He will almost certainly finish ahead in terms of elected delegates. So, Mrs Clinton's only hope is to persuade the 796 "superdelegates" (members of Congress, senior party officials and other bigwigs) to reverse the elected delegate outcome—and push her over the 2,025 target.

This is where everything could turn ugly (and it is hardly pleasant at the moment). Mrs Clinton will need to present the superdelegates with an excuse to overturn the verdict of all those caucuses and primaries. It is still possible that she could win the popular vote, especially if she triumphs in Pennsylvania: that would help her case enormously. She will also no doubt point out that she has won in all of America's biggest states, bar Illinois and Georgia, as well as several swing states, including Ohio. But Mr Obama will have powerful arguments of his own, such as his appeal to independents and his victory in Virginia. So the chances are that Mrs Clinton sooner or later will resort to a somewhat legal approach: asking the superdelegate-judges in effect to dismiss the verdict of the first trial on the basis that the procedure was unfair.

Two things offer her a chance. First, Mr Obama's delegate strength derives in part from his success in the states that hold caucuses, rather than primaries. A primary is much like a regular election, in which voters turn up throughout the day to vote, or can vote early by post or sometimes in person. Caucuses are time-consuming meetings, held in the evening and with tiny turnouts, mostly of activists. Many of those with children, or night-shift jobs, and the elderly are in effect disenfranchised. Those, of course, are Mrs Clinton's core voters.

The second is Florida. The state broke the party's rules by holding an early primary, so the delegates it elected don't count. But Mrs Clinton easily won this non-vote (and another disqualified contest in Michigan). Mrs Clinton's chances of getting these delegates included in the official tally are slim— rules are rules, after all. But she may argue that the superdelegates cannot ignore the voice of America's fourth-biggest state, and a crucial Democratic target for the November election. Mr Obama will reply that nobody campaigned there.

McCain sits pretty

For the superdelegates this is tricky ground. Imagine the consequences if for instance the (mainly white) bigwigs overturned a perceived win by the first serious black candidate. The party's high command might well be better ordering Florida and Michigan to redo their primaries—not because that would settle the outcome (neither candidate would chalk up a decisive victory), but because it would remove two bones of contention. There will be enough other things to fight about.

In the meantime, Mrs Clinton and Mr Obama might try to remember that they are on the same side. Every time she labels him as inexperienced or duplicitous, and every time he calls her divisive, the Republicans, with John McCain now their undisputed candidate, gain a little.

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On deforestation, technology and government, malaria, Fidel Castro

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Forest harmony

SIR – The Ngoyla-Mintom forest in Cameroon is worth conserving, as you say, but you are wrong to promote selling it to the highest bidder as the solution ("The unkindest cut", February 16th). More than 45 years in conservation has taught us that unless we find answers that work for local communities, efforts to avoid deforestation will fail.

This is why WWF proposes a comprehensive solution for maintaining forest cover in Ngoyla-Mintom. Sustainable hunting and forestry would provide long-term livelihoods for local people, while the preservation of a core area of pristine forest would protect species. Altogether, this forested landscape will help the world avert damaging climate change. (Deforestation, particularly in the tropics, contributes about one-fifth of global carbon emissions.)

WWF's proposal for the forest was the result of wide consultation and has been initially endorsed by the Cameroonian government, which set up a commission to examine it further. We believe the needs of nature conservation and humans are compatible. That's what we believe the world also wants to see in Ngoyla-Mintom.

James Leape
Director general
WWF International
Gland, Switzerland

Computing made easy

SIR – There were a number of inaccuracies in your assessment of the National Health Service's Choose and Book project (Special report on technology and government, February 16th). You featured a case study that highlighted a number of IT problems that were local and nothing to do with Choose and Book. This programme allows general practitioners to refer patients to consultants, but it is for local hospitals and commissioners to decide if they want to offer the facility. You also reported that the system did not differentiate between routine or urgent appointments. Again, this depends on whether the hospital concerned differentiates in its patient administration system.

Nearly 6.5m patients have now been referred through Choose and Book; 86% of GP surgeries use the system and 22,000 bookings are made daily, around half of all GP referrals. Although I spoke at length with your reporter, I am disappointed that he felt unable to present a more balanced view.

Dr Stephen Miller
Medical director
NHS Connecting for Health Choose and Book Programme
London

SIR – We sympathise with the travellers you described waiting for visas outside the Indian High Commission. However, the usual practice is to obtain a visa first, before confirming travel arrangements. On average the commission deals with 2,700 visas each day, which are issued within 45 minutes from the time of submission. We now issue postal visas within seven working days of receipt of an application. We have also decided to outsource some operations to a private-sector provider, which should help ease the load.

M. Subashini

High Commission of India
London

How to fight a disease

SIR – I would like to comment on the falling out between the World Health Organisation and the Gates Foundation ("The side-effects of doing good", February 23rd). Malaria is a very complex disease. I suspect that outsiders, ie, those with no or little field experience with malaria, became so frustrated by the almost incestuous infighting within the ranks of malariologists that decision-making powers moved into the hands of non-malariologists, where it largely remains.

Given the century-long battle that has been waged against malaria around the world, humility rather than bravado is called for. Bill Gates's call for eradication does not help matters one bit: it risks further divisiveness when resolution for concerted action is called for. Realistic goals should be negotiated and strategies pursued that help strengthen local capacities to fight this scourge, including that of individuals, families and communities at large. Most importantly, the capacity to evaluate projects must be developed so that we will have learned more by the end of whatever programme is carried out.

Socrates Litsios
Former senior scientist
World Health Organisation
Baulmes, Switzerland

Assessing the comandante

SIR – Your leader on recent political changes in Cuba calls on the United States to "lift the embargo against a sad, dysfunctional island" ("Castro's legacy", February 23rd). The key question in reassessing the embargo policy is this: will American businesses be able to get a fair shake in Cuba? Other nations have not.

During the past 50 years it has not been possible to have trading partners in Cuba other than entities that are wholly owned and regulated by the Castro state. Before relinquishing power Fidel Castro tried hard to get the embargo lifted, with the evident aim of having American banks and taxpayers finance the next phase of his revolution. Cuba's present rulers are likely to harbour the same hopes.

So the smart move is for politicians in the United States to proceed with caution in reviewing the embargo policy. Negotiations with Cuba about re-establishing commerce will need to be probing and vigorous. Those talks ought to stay on point with criteria that businesspeople recognise as pertinent and valid. You say, quite rightly, that the legacy of political feelings ought not to be a source of further pain. But neither should we take on the pain of imbalanced economic relations for the sake of misguided political motives.

David Landau
Editor
Pureplay Press
Los Angeles

SIR – The occasion of Mr Castro's apparent swan-song would have been a good opportunity for you to reflect on the way in which American policy led to his rise in the first place. This policy was characterised by a blatant disregard for the sovereignty of another country, not least through repeated military invasions and by supporting Batista, Mr Castro's equally ruthless predecessor.

This is not to excuse Mr Castro for his own brutality, but it is not surprising that, at least in the early years of the revolution, the average Cuban was firmly in his corner. Regardless of whether Cuba's recent history will be shaped more by fear than affection for Fidel, one still marvels at the improbable ability of a poor Caribbean island lying just 90 miles off Key West to defy ten American presidents for half a century while under embargo.

Dave Glantz
Fairfax, Virginia

SIR – The illustration on your cover depicted Mr Castro's legacy as a stubbed-out Cuban cigar in an

ashtray. A smoker, however, would never stub out a fine Havana. Besides the aesthetic pain of crushing such an elegant object, stubbing the cigar out makes a hell of a stink. Large, hand-rolled cigars are customarily set aside in the ashtray and allowed to go out quietly by themselves, causing much less smoke and mess. Rather like Fidel's chosen mode of exit.

Douglas Hamilton
Belgrade

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India's civil service

Battling the babu raj

Mar 6th 2008 | DELHI, JALAUN AND KOCHI
From The Economist print edition

AFP

India has some of the hardest-working bureaucrats in the world, but its administration has an abysmal record of serving the public

Get article background

RIGZIN SAMPHEL, a 33-year-old civil servant, wakes to the screeching of peacocks outside his bedroom window. Stepping into the gentle sunshine of a north Indian spring morning, he hears the lowing of three brown cows tasked with providing his milk. A scuffling attends him, as armed guards, peons, gardeners and orderlies—tasked with catering to Mr Samphel's other needs—hop to attention.

A four-year veteran of the elite Indian Administrative Service (IAS), Mr Samphel is the district magistrate of Jalaun, in Uttar Pradesh (UP) province. More often called the collector, or district officer, the district magistrate is the senior official of India's key administrative unit, the district. In Jalaun, an expanse of arid plain between the Ganges and Yamuna rivers, Mr Samphel is in charge of 564 villages and 1.4m people.

After a hearty breakfast, he leaves his residence—requisitioned from a local maharajah around 1840—and gets into his car: a white Ambassador, curvaceous clone of the 1948 Morris Oxford, complete with siren and flashing blue light, which has symbolised officialdom in India for six decades. Mr Samphel takes the back seat; a policeman rides machinegun in the front; and in two minutes they arrive at Mr Samphel's main office, the "collectorate".

There for the next four hours, beneath a portrait of a beaming Mohandas Gandhi, Mr Samphel receives a stream of poor people. A turbaned flunkey regulates the flow, letting in a dozen at a time. Many are old and ragged, or blind. Paraplegics slither to the collector's feet on broken limbs. Most bring a written plea, for the resumption of a widow's pension that has mysteriously dried up; for money for an operation; for a tube-well or a blanket. Many bear complaints against corrupt officials. One supplicant wants permission to erect a statue of a dead politician: a former champion of the Hindu outcastes who comprise nearly half of Jalaun's population.

Mr Samphel listens, asks questions and, in red ink, scrawls on the petitions his response. For desperate cases, he orders an immediate payment of alms, typically 2,000 rupees ($50), from the district Red Cross society, of which he is president. More often, he writes a note to the official to whom the petition should have been directed in the first place—or, wretchedly often, to whom it has already been directed: "Act upon this according to the law."

Mr Samphel reckons he spends 60% of his time dealing with individual supplicants—also outside the collectorate. As the Ambassador turns back on to the road, it is waylaid by a tractor bringing a cartload of petitioners in from a distant village. Then one of Mr Samphel's three mobile phones bleeps. Someone wants firewood; Mr Samphel calls a forestry official to relay the request. It is a hugely impressive performance. Mr Samphel works 16 hours a day, seven days a week, and reckons he has had two days off since 2003. But this is hardly an efficient way to minister to a needy population almost half the size of New Zealand's.

Indeed, all India's administration is inefficient. According to the Congress-led government's own estimate, most development spending fails to reach its intended recipients. Instead it is sponged up, or siphoned off, by a vast, tumorous bureaucracy. That is why, despite India's commitment to universal health care, water and education, only five countries have a lower portion of health spending in the public sector; over half of urban children are educated privately; and nearly all investment in irrigation is private. Under stress of tube-wells and a four-year drought, the water table in Jalaun has fallen by up to 15 metres. Despite the proximity of two great rivers, only 40% of the district is irrigated; no canal has been dug since colonial times. As the harvest approaches, over half of Jalaun's peasant inhabitants are growing nothing.

On coming to power in 2004, Manmohan Singh, the prime minister, said that administrative reform—"at every level"—was his priority. Some economists see India's malfunctioning public sector as its biggest obstacle to growth. Lant Pritchett, of the Kennedy School of Government at Harvard, calls it "one of the world's top ten biggest problems—of the order of AIDS and climate change". Yet it is hard to find progress on Mr Singh's watch. Perhaps the best that can be said is that a policy of the previous government, a hiring freeze on two-thirds of vacant civil service posts, continues: since 2001 around 750,000 jobs have been left vacant. A right-to-information law, passed in 2005, also contains at least a promise of official accountability. But a more seismic reform, a 16-year campaign to decentralise power from the states to local elected bodies known as panchayats, cutting out much of the bureaucratic cancer altogether, has hardly moved.

Armies of clerks

Including railway workers, who comprise one of the world's biggest payrolls, India's central government employs around 3m civil servants and the states another 7m. They include vast armies of paper-shuffling peons. The number of senior "Category One" bureaucrats—broadly speaking, "decision-makers", according to Satyananda Mishra, boss of the Department of Personnel and Training (DPT), which runs the civil service—is only 80,000. And the elite IAS, which mostly runs India, numbers a mere 5,600.

Its ranks include almost all the collectors of India's 604 districts, and over 60% of senior officials and managers working in government ministries and publicly owned corporations. (The rest are mostly police and railway officers.) As the successor to the colonial Indian Civil Service—the "steel frame" of British rule, according to one prime minister, Lloyd George—the IAS was designed to perform the same unifying function. It is a national and permanent service, theoretically apolitical, and recruited and trained at the centre. Yet its members serve mostly in the states—the main exception being 600 of the most senior babus who, in Whitehall fashion, advise ministers and draft policy in Delhi.

Across India, the IAS commands both reverence and contempt. Male recruits are among India's most marriageable: more suitable, it is said, than the elite geeks of the country's booming computer-services industry. Indeed, India's recent run of 8% economic growth has if anything increased their prestige, by creating more senior positions for which IAS officers are required. This year 140 people will be recruited into the IAS from around 200,000 applicants, one of the biggest intakes ever.

Yet the steel frame has now become a serious bind on badly needed reforms. As the author of a typical recent IAS history and former mandarin, Sanjoy Bagchi, puts it: "Overwhelmed by the constant feed of adulatory ambrosia, the maturing entrant tends to lose his head and balance. The diffident youngster of early idealistic years, in course of time, is transformed into an arrogant senior fond of throwing his weight around; he becomes a conceited prig."

Part of the problem, such critics say, is that the quality of IAS recruits is falling. They identify a number of reasons for this: falling education standards; growing competition for talent from the private sector; increasing political interference; and, above all, caste-based reservations, which now retain half of all IAS posts for outcaste and low-caste Hindus and members of tribal communities. Former mandarins also point to chronic and worsening standards of probity across the public service. And yet, compared with the

hirelings of almost any other Indian institution, IAS recruits remain excellent.

Overload may be a better explanation for the service's failings. In Jalaun, Mr Samphel is theoretically the boss of 65 government departments. Around one in five of these, he estimates, is run by a competent deputy. He laments: "If I don't put pressure on my juniors, everything gets largely corrupted." For general administration, Mr Samphel, whose collectorate contains not one computer, has an annual budget of $22.5m.

Compared with his British forebears', Mr Samphel's list of duties has grown crazily. Like them, he is primarily responsible for maintaining order and collecting land revenues in his district. In the first case, he mostly defers to the local police chief, Jalaun's only other first-rate official. But in the district that was once home to a notorious, now murdered, female bandit, Phoolan Devi, Mr Samphel is also regularly called on to authorise arbitrary police actions: for example, to extend summary detentions under the "Gangster Act".

Mr Samphel's second core responsibility, collecting revenue, is a lesser burden. Land taxes, which have scarcely risen since British days, are now principally a means of updating the land registry. Yet the corruption and incompetence that dog this process—of crucial concern to peasant India—propel many supplicants to Mr Samphel's door. In addition, India's collectors manage two other, not inconsiderable, events: elections and a decennial census. They also organise the government's response to natural disasters, such as the tsunami which, in 2004, killed over 7,000 in southern Tamil Nadu.

The collectors' other great burden—overseeing the design and management of massive welfare and development projects—is one the IAS was never designed for, and by and large performs abysmally. Mr Samphel, for example, oversees the spending of another $25m on 30-odd welfare programmes. Over the past year he has doled out $14m for a charitable ditch-digging project, the National Rural Employment Guarantee Scheme (NREGS), which is to be spread across India this year. As the drought bites, he has requested another $13m for this project; it has yet to arrive.

Political entanglements

In even the best of worlds, Mr Samphel's would be an impossible job. In India's corrupt democracy, the collectors' burden is made much heavier by interfering politicians. The problem is most grievous in north India, where civil servants tend to attach themselves to politicians for enrichment, advancement—or in despair of otherwise getting their jobs done. The habit is said to have been implanted in the system

during India's 1975 state of emergency, when, with the help of senior bureaucrats, Indira Gandhi grabbed power for 21 months. One IAS officer tainted by the hiatus was Navin Chawla, a senior civil servant in Delhi with strong ties to the Gandhi family, Congress's leaders. A government inquiry into the emergency ruled that he was "unfit to hold any public office which demands an attitude of fair play and consideration for others". The current government has made him deputy chief of India's election commission.

Under India's constitution, politicians cannot sack IAS officers. Instead they tend to misuse their power to transfer or suspend them. On January 31st four IAS officers were suspended by UP's chief minister, Mayawati, a champion of outcaste dalits. Their crime was to have penned friendly words about Rahul Gandhi, Mrs Gandhi's grandson, a rising force in the Congress party. Indeed, after any transfer of power in UP, Madhya Pradesh (MP), Orissa and Bihar, scores of senior civil servants are routinely shunted—including Mr Samphel's predecessor, who was, not coincidentally, of the same Hindu caste as the outgoing chief minister. During a riotous eight-month rule over MP in 2003-04, a politician called Uma Bharati transferred 240 of the state's 296 IAS officers.

To mitigate the damage done by such shake-ups, the DPT, of which Mr Mishra is chief, recently changed the civil-service code, fixing the minimum job tenure at two years. Alas, only a handful of states have accepted this—as they are constitutionally obliged to do. And yet other decent plans and proposals exist. Continued retrenchment is one; according to Sheila Dikshit, Delhi's chief minister and the widow of an IAS officer, around half of senior civil service posts could be scrapped. Another proposal is to lower the upper age limit for IAS recruits, thereby, it is argued, improving their quality.

Civil service pay, currently $500 a month for a district collector, might also be increased. A decennial pay commission, due to report this month, is expected to recommend this. Logic—though little evidence—suggests that this might reduce the tendency of senior babus to steal. It might also fend off growing competition for India's brightest talent from private companies, though retaining civil servants is not yet proving difficult; over the past year, fewer than 20 IAS officers have quit the service to join the private sector. Getting rid of corrupt or incompetent civil servants is rather trickier. In a 40-year IAS career, B.K. Chaturvedi, a former head of the civil service, can recall only three officers having been dismissed.

A Band-Aid on a corpse

Sensible as these changes may be, however, reforms written by civil servants are unlikely to provide the necessary transformation in India's civil service. Nor is technology the instant elixir it is sometimes considered to be. Inspired by a crusading IAS officer, in the past two years Karnataka state has built 800 privately managed "telecentres" where citizens can access land records, birth and death certificates and driving licences online. Following its lead, the central government is rolling out 100,000 similar terminals, with additional services in education and health care. The benefits of skipping a rung or two of rent-seeking officialdom are manifest.

But in a mostly unreformed system, rent-seekers have a habit of clawing back. The title of a draft paper by researchers at the Massachusetts Institute of Technology is apt: "Putting Band-Aid on a corpse: incentives for nurses in the Indian public health-care system". To encourage a batch of Rajasthani nurses to show up for work—which, on any day, over 60% did not—its authors began monitoring their attendance at village health centres by computer and sending the results to the state health ministry. Threatened with fines, half of the absentees returned to work. Six months later, they began breaking the computers and reporting "machine problems". After 16 months, the health centres featured in the study were no more likely to contain a nurse than any other.

No doubt Mr Singh is right: to provide poor Indians with halfway decent public services, the bureaucracy needs, root-and-branch, to be made accountable. But this will not happen soon. Indeed, one of the more hopeful changes will be organic. As India's economy grows, inflating land prices and increasing opportunities for private contractors, corrupt politicians and bureaucrats may find reliable sources of rent that do not involve stealing directly from the mouths of the poor. More managed and substantial reforms, including the right to information and decentralising power, are also hopeful. Yet they are in their infancy, partly because of resistance from jealous bureaucrats.

India's panchayats, or local governments, are in theory responsible for managing welfare and development schemes in their district or urban area. But many are powerless. In only two states, Communist-ruled Kerala and West Bengal, have they been given control over their own budgets—with patchy success.

Kerala, for example, has put 90% of development spending in the hands of its panchayats. In addition to central government schemes such as the NREGS, village panchayats in the southern state have $250,000 a year to spend as they choose. This has reduced the collector to a regulatory role: overseeing land records and advising the panchayats. On paper, this looks terrific. It also helps that Kerala is one of India's least corrupt states. And yet panchayat leaders, often drawn from feudal or political elites, can be as self-serving as any babu. S.M. Vijayanand, chief official of Kerala's Local Self Government Department and a main architect of the reform, concedes that the new system also misses the collector's managerial skills. He says: "It's more equitable, more accountable, more democratic, but there's a cost also in efficiency."

In Kochi, the state's seaside capital, the district collector, Muhammad Hanish, enjoys the same trappings of office, and suffers many of the same burdens, as Mr Samphel. Stepping out of his white Ambassador, Mr Hanish, who is 38, inspects a suburb of Kochi with relish. ("This is the end of my town; after this, the Arabian Sea.") He has just spent four hours dealing with 200 poor supplicants. He is in charge of 60 departments. Yet, unlike Mr Samphel, he has no control over their budgets. Nor is he directly responsible for planning and implementing the public works that they are called on to perform. After three-and-a-half years in the job, during which time he reckons to have seen 10,000 project proposals, Mr Hanish says he has forced the local panchayat to drop "less than ten" of them.

That is as it should be. Elected panchayats, unlike elite civil servants, can be held to account. But it may take years before poor Indians enjoy the benefits of this. For now, Mr Hanish says the new system has made his job more difficult and the delivery of public services poorer. "Most panchayat leaders are incompetent. Too many are corrupt."

Yet elsewhere the picture may be worse. In most states, including UP, politicians and bureaucrats have denied the panchayats even modest power. The ditch-digging NREGS is an example. It is hard to know what UP's panchayats exist for, if not to identify and organise its wretched beneficiaries. But it is the collectors who mostly control the scheme.

And so in Kochi, after a hellish long day, Mr Hanish goes home to work until 2am on the next day's files. Meanwhile in Jalaun, 2,400km to the north, Mr Samphel sets out to inspect freshly dug ditches, and listen to the infinite complaints of their ragged diggers, by torchlight.

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The primaries

Never say die

Mar 6th 2008 | AUSTIN, TEXAS AND COLUMBUS, OHIO
From The Economist print edition

The voters in Texas and Ohio have upended the Democratic race yet again

Getty Images

Get article background

THERE were two big winners in this week's Democratic primaries: Hillary Clinton, who returned from the political graveyard, and John McCain, who, having secured the Republican nomination, can now enjoy the spectacle of the two Democratic candidates at each other's throats for at least another six weeks.

On the morning of March 4th Mrs Clinton faced the end of her presidential dreams. No less a person than her husband had stated that she might have to think of pulling out of the race if she lost in Texas and Ohio. Two of the party's most influential grandees, Ed Rendell, the governor of Pennsylvania, and Bill Richardson, the governor of New Mexico, said much the same thing. Her campaign has had financial problems, is riven by infighting and was overclouded by gloom.

Mrs Clinton's three victories on Tuesday night—in Rhode Island, Ohio and Texas—changed all this. They ended Barack Obama's winning streak of 11 consecutive primaries and caucuses (12 if you count Vermont, which he won early on Tuesday evening). They applied a jolt of energy to the Clinton machine. And they forced a Democratic establishment, which was beginning to view Mr Obama as inevitable, to give Mrs Clinton another chance.

Mrs Clinton pulled off this resurrection by reassembling her core constituency of working-class whites, women, older voters and Latinos. Mr Obama had been steadily eating into these groups during his long winning spell. There was also lots of speculation that the Texas Latinos—who are younger—might behave differently from their Clintonian Californian cousins.

But the exit polls show that Mrs Clinton reforged her bond with these groups. She won women in both Ohio and Texas by 16 and nine points respectively. She won white men in Ohio by 19 points. She won Texas Latinos, who turned out in record numbers, by two to one. Her biggest margins came from people who have not been to university (ie working-class voters). She won these voters by 17 points in Texas and an astonishing 32 points in Ohio.

Mrs Clinton was clearly helped by her decision to mount a bare-knuckle assault on Mr Obama in the days before the election. She hammered him as not being prepared to be commander-in-chief (an advertisement showed a phone ringing in the White House at 3am and a poised Mrs Clinton answering it). She skewered him for talking out of both sides of his mouth on NAFTA (an Obama adviser seemingly

assured the Canadians that he was not really threatening to tear up the trade deal).

She was also helped by a fit of guilt in the press corps. The Clinton campaign has been complaining for weeks that the press have treated Mr Obama with kid gloves. But what arguably gave the journalists the kick they needed was a skit on "Saturday Night Live" which skewered journalists for pandering to Mr Obama. The press pack turned on Mr Obama dramatically in the couple of days before the election—peppering him with questions about his position on NAFTA and his ties with Tony Rezko, a Chicago businessman (see article). Mr Obama responded with less than his normal aplomb, to put it mildly.

These twin assaults clearly had an impact. Mrs Clinton won decisively among people who made up their minds in the last moment (a fifth of Texans and of Ohioans). But Mrs Clinton's success in throwing the kitchen sink at Obama was abetted by worries about the kitchen table. The rapidly deteriorating economy is spreading gloom and anxiety across the land, playing to Mrs Clinton's strengths as a tried-and-tested manager and taking the wind out of Mr Obama's vague talk of "change" and "hope". Half the voters in Texas and three-fifths in Ohio regarded the economy as the most important issue.

Mrs Clinton's assaults on Mr Obama were not very pretty—particularly her Nixonian assurance that her rival is not a Muslim "as far as I know". But Mrs Clinton was also helped by her extraordinary indomitability in the face of adversity. The former first lady managed to march on despite chaos in her campaign and growing calls for her to withdraw from the race. The best line in her victory speech, in Columbus, Ohio, came when she used this indomitability to strike a chord with hard-pressed Americans: "For everyone here in Ohio and across America who's ever been counted out but refused to be knocked out, and for everyone who has stumbled but stood right back up, and for everyone who works hard and never gives up, this one's for you."

The fighter still faces daunting odds. Mr Obama began March 4th with a lead of around 160 delegates. For all the headlines about her victories in Ohio and Texas, the Democratic Party's system of allocating votes proportionally means that she has done almost nothing to close her delegate gap. Mrs Clinton gained only about a net nine delegates from her ten-point win in Ohio. And thanks to Texas's bizarre "two-step" voting system, which allows primary voters to vote again in a Democratic caucus, she ended up securing only one or two more delegates than he did. Mr Obama won in the caucus, in which only about 100,000 people voted, versus 2.8m in the primary.

By some calculations she still needs to win more than 60% of the popular vote in the remaining contests to have a chance of catching up with Mr Obama—a near impossibility (she only won 54% in Ohio). Mr Obama is likely to resume his winning streak in the forthcoming contests in Wyoming on March 8th and is certain to do so in Mississippi on March 11th.

Texas and Ohio will not change the fact that Mrs Clinton has messed up what should have been an easy march to the nomination, allowing herself to be outcampaigned, outsmarted and outspent by a newcomer. In every race she enters she sees huge leads in the opinion polls shrink dramatically as Mr Obama works his rhetorical and organisational magic.

Mr Obama also has plenty of kitchen sinks of his own to throw at his rival. Is Mrs Clinton really the right person to be raising questions about financial shenanigans? Two of Mrs Clinton's closest associates from her years in Arkansas, Jim McDougal, her property partner, and Webb Hubbell, her law-firm partner, were later convicted of felonies.

And besides, exactly what experience does she actually have of answering telephones at three in the morning? Mrs Clinton did not even have security clearance in the White House, and her most important vote in recent years, to authorise the Iraq war, is one that she admits she regrets. When a journalist from *Slate* magazine asked her closest advisers, on a conference call, to name an international incident in which their candidate has been tested, he was met with a long, embarrassed silence.

But the dynamic in the race has clearly changed yet again. Mrs Clinton can use the peculiar result in Texas—the fact that the caucuses produced such a different vote from the broader primary—to question the significance of Mr Obama's performance in other caucuses, all of which he has won. She can also keep pointing out, as she did this week, that no recent candidate has won the White House without winning Ohio, the truest bellwether state. If Mrs Clinton cannot catch up with Mr Obama in pledged delegates, Mr Obama also has no chance of reaching the 2,025 delegates that would secure him the nomination. Both must rely on superdelegates.

Mrs Clinton is also in pole position to win the next big primary, in Pennsylvania on April 22nd.

Pennsylvania is in many ways more like Ohio than Ohio itself, a rust-belt state rich in working-class voters and senior citizens, and a must-win state for the Democrats in the general election. Mrs Clinton also has the support of the state's governor, Mr Rendell, who is determined to perform as well for her as Ted Strickland, the governor of Ohio, did for her this week.

The result will be a punch-up not just in Pennsylvania but in the Democratic Party as a whole as Democrats squabble over everything from party rules (should the delegates from Florida and Michigan be seated or not?) to the relative importance of small and large states. There is an ancient Greek myth, retold in Aeschylus's play “Seven against Thebes”, about two sons of Oedipus who fought so bitterly over who should inherit their father's kingdom that they ended up slaughtering each other. This could be the Democrats' Theban moment.

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Fraud

Trials and tribulations

Mar 6th 2008 | CHICAGO
From The Economist print edition

Barack Obama's ties to Tony Rezko come back to haunt him

Get article background

BARACK OBAMA spent March 3rd making his hopeful pitch to voters in Texas. Antoin "Tony" Rezko spent it in a courthouse in Chicago, the first day of his criminal trial. It would be hard to find two men with more different personas. Mr Obama is the bright face of the Democratic Party. Mr Rezko is seen as one of Chicago's slimiest characters—no small feat in a city where corruption rivals deep-dish pizza as the local speciality. Unfortunately for Mr Obama, he and this shady operator were once quite friendly.

The trial, as his staff rush to point out, has nothing to do with Mr Obama. Mr Rezko, a political fund-raiser, property developer and restaurateur (of fast food), was indicted in 2006. Working with Stuart Levine, who served on two state boards, Mr Rezko allegedly schemed to squeeze campaign donations and fees from those trying to do business with the state. Mr Rezko has pleaded not guilty to attempted extortion, money laundering, fraud, and aiding and abetting bribery.

AP

Rezko in the dock

Prosecutors will present evidence to show how Mr Rezko used his influence as a fund-raiser. If any politician should be worried by this, it should be Rod Blagojevich, Illinois's inept governor, whose administration's appointment policies will be scrutinised. Mr Obama's name may come up in the trial, but only peripherally: Mr Rezko told two associates to give money to his 2004 Senate campaign.

Nevertheless, the trial is a problem for Mr Obama. New interest in Mr Rezko means new interest in Mr Obama's ties to him. The developer was a supporter of Mr Obama from his earliest days in politics. (The senator has now given to charity some $150,000 in donations linked to Mr Rezko.) But Hillary Clinton's claim in January that Mr Obama had represented the "slum landlord" was incorrect. Mr Obama did only a few hours of work for non-profits working with him. He also denies giving Mr Rezko any favours. In 1998 Mr Obama wrote letters to support one of Mr Rezko's projects, a home for the elderly, but his campaign insists he would have backed the plan anyway.

More problematic is a favour Mr Obama accepted. Mr Rezko helped him buy his home in Chicago in 2005. The seller would close the deal on Mr Obama's house only if the adjacent empty lot was sold on the same day. In June 2005 Mr Obama bought his home for $1.65m, $300,000 less than the asking price, and Mr Rezko's wife bought the adjacent lot. (The sellers say that $1.65m was the best offer they received.) Mr Obama later bought a small strip of land from Mrs Rezko.

Mr Obama concedes that the deal was a "boneheaded" error. Hungry adversaries may find it the meatiest one available. By 2005 Mr Rezko was widely rumoured to be under federal investigation. Mr Obama's association with him shows a lapse in judgment—problematic for a man whose campaign rests on the claim that judgment matters more than experience. In an age in which political character assassination is an acknowledged art, even a hint of scandal can prove to be almost as harmful as the real thing.

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The Republicans

Ready for round two

Mar 6th 2008 | WASHINGTON, DC
From The Economist print edition

John McCain secures the nomination

Get article background

LAST May a blogger named Dean Barnett opened a "dead pool" for John McCain's presidential bid. Punters were invited to bet on the date when his apparently terminally ill campaign would shrivel up and die. Mr Barnett guessed August 31st 2007.

This week, Mr McCain clinched the Republican nomination. By winning all four states that voted on March 4th, he at last racked up an overall majority of delegates. President George Bush had him to lunch at the White House and endorsed him (perhaps a questionable benefit). The Republican National Committee rolled up its sleeves and got ready to hustle for him.

His last rival, Mike Huckabee, conceded graciously. In a speech that referred to Isaiah, St Paul, baseball and the Alamo, he promised to help Mr McCain win in November. Mr McCain will be grateful. Though Mr Huckabee never really broke out of his niche among evangelical church-goers, it is a big niche and he proved he can rouse it more eloquently than any other politician. He will remain a force in Republican politics.

Mr McCain still does not know who his Democratic opponent will be, but he promised in his victory speech "to make a respectful, determined and convincing case" that Americans should vote for him rather than "our friends in the other party". His strategy is still evolving, but some outlines are becoming clear.

Presidential candidates are judged on "their character and the whole of their life experiences", he told supporters. Mr McCain has been shot at, stabbed, beaten and twice nearly killed for his country. His Democratic rivals have endured only metaphorical flak.

The Democrats are already trying to blame Mr McCain for the "Bush-McCain" war in Iraq. Mr McCain says it is pointless to argue over whether America should have invaded. Since it did, the next president must explain how to bring the war "to the swiftest possible conclusion" without sparking genocide, destabilising the Middle East or empowering al-Qaeda. Hillary Clinton is right to argue that Barack Obama is ill-prepared to deal with a national-security crisis, say Mr McCain's aides—but she is no better.

Though he is the only candidate who has dropped bombs on foreigners, Mr McCain is also the only one who embraces globalisation. While his Democratic rivals stoke popular fear of free trade, Mr McCain defends it stoutly. "I will leave it to my opponent to argue that we should abrogate trade treaties and pretend [that] Americans can secure our future by trading and investing only among ourselves," he declared in his victory speech.

Mr McCain listed several other differences between his policies and the Democrats'. He favours low taxes and light regulation. They think they can keep companies from going overseas "by making it harder for them to do business here at home". He favours school choice. They do not. They favour "big government mandates" to improve America's health care. He favours freer competition to bring down costs.

The odds are not in Mr McCain's favour. His party has presided over an unpopular war and (probably) a recession. His opponent will be younger, more articulate and better funded. If it is Mr Obama, he will also be more charismatic and better-organised in nearly every state. But Mr McCain is betting that, as well as his superior policies, his more open style will win voters round. He takes questions from anyone and actually answers them. "Americans aren't interested in an election where they are just talked to and not listened to," he maintains.

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Ethics in Louisiana

Taco Bell time

Mar 6th 2008 | NEW ORLEANS
From The Economist print edition

America's most laid-back political culture acquires a few rules

EARL LONG, Louisiana's notorious ex-governor, is best remembered for dating a stripper, winning an election while confined to an asylum and crafting some of the sharpest political aphorisms of his time. For instance: "Someday Louisiana is gonna get good government. And they ain't gonna like it."

The state's current governor, Bobby Jindal, is hoping "the Earl" may have been wrong about that. Mr Jindal, America's first governor of Indian-American descent, has just got most of what he wanted from a special session of the legislature that he convened about a month after taking office in January. The session had one simple goal: to improve ethics standards in a state that has become synonymous with scandal and graft.

AP

New broom Bobby

Things got off to a bad start. Not long before the session began, it emerged that Mr Jindal's campaign team had failed to report properly a campaign contribution from the Republican Party. Mr Jindal brushed this off as a technicality, but it made a stark contrast to his promises to deal sternly with transgressors.

Then, on the eve of the legislative session, came another gaffe: a top Jindal staffer gave his brother a set of sought-after tickets to a concert in New Orleans. Small potatoes, perhaps, but an act that went directly against a Jindal proposal to forbid members of the legislature from accepting freebies of that sort. Happily for Louisiana, Mr Jindal's proposals have mostly become law anyway.

Most elected officials (all those representing 5,000 people or more, except judges) must now disclose all their sources of income. Public officials are barred from state contracts. And, among smaller victories, legislators may no longer let lobbyists buy them meals costing more than $50. Galatoire's is out.

Louisiana being Louisiana, a session focused on ethics was not without its hiccups. An effort to strip pensions from lawmakers convicted of crimes went nowhere, as did another to bar cash contributions to political campaigns. There were cringe-worthy moments, too—for instance, during the debate on the bill limiting meal-tabs to $50, one New Orleans legislator complained that such a low ceiling was going to limit her to free meals at Taco Bell.

Early notices are good. The Centre for Public Integrity, based in Washington, DC, has just given Louisiana 99 out of a possible 100 points in a ranking of public-disclosure requirements for state legislators; putting its financial-disclosure law on a par with America's best, where it was previously among the worst. But it will take some time to answer the bigger question: whether changes to the lawbooks will have any real and lasting effect on America's most laid-back political culture.

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Oregon's forests

The wood and the trees

Mar 6th 2008 | EUGENE
From The Economist print edition

A dispute over logging obscures the real problem with Oregon's economy

Get article background

CLIMB a hill above Linslaw, 35 miles (56km) west of the city of Eugene, and a pattern becomes clear. On land owned by the federal government, Douglas firs, some of them 300 years old, grow in profusion. Interspersed with them are private tree farms, some of which contain little more than earth and a few branches left by loggers. Two closely watched federal reviews will determine whether western Oregon comes to more closely resemble the former or the latter.

Between the 1940s and the 1980s much of Oregon was treated as a giant timber factory. Then came the listing, under the Endangered Species Act, of the northern spotted owl and the marbled murrelet, a seabird. Logging on public lands promptly collapsed, together with many of the businesses that relied on it. Between the late 1980s and the late 1990s the number of jobs in Lane county's lumber industry dropped from 11,500 to 6,800. Since then environmentalists have repeatedly stymied efforts to increase production.

The Bureau of Land Management (BLM), which owns 2.6m acres (1m hectares) of Oregon, now proposes to increase the tree harvest to four-and-a-half times last year's level. It wants to clear-cut large swathes of its forests, including some ancient ones. As it admits, this would mean less space for fluffy fauna. A second review concerns the spotted owl, which some claim is threatened less by logging than by a competitor, the barred owl.

The prospect of a return to mass logging delights Robbie Robinson of Starfire Lumber. "Here we are in the timber capital of the world, and I have to go to Canada to get enough wood to employ 75 people," he complains. It also pleases rural counties, which used to derive much of their income from timber sales and now depend on handouts from Washington, DC. These have become unreliable: Oregon's politicians are still fighting to get cash for the coming financial year. Yet even those who long for a return to clear-cutting doubt that it will happen soon. If the past is any guide, environmentalists will tie it up in court. Opinions are hardening against logging: last month Eugene's city council passed a resolution against it. Faye Stewart, a Lane county commissioner who lists "saw-milling" as one of his hobbies, says that the area has filled up with people who do not want their pretty new home denuded of greenery.

Doug Heiken of Oregon Wild, a frequent and successful environmental litigator, suggests a compromise. Some public forests cut in the second half of the 20th century are now overgrown with spindly trees. Thinning them would open up the canopy, allow bigger trees to thrive and provide some logs to saw-mills. But only for a time: once the forest is healthy it would be off-limits. Some politicians are keen on the idea. Loggers are not: thinning is more expensive than clear-cutting.

A more pressing problem is how to balance the books. Oregon has no sales tax, and property levies in areas that used to rely on timber sales are risible: this year Lane county expects to raise around $90 per person. In 2006, and again last summer, the county asked voters to approve modest tax increases to help pay for basic services. Both times the voters refused. Eventually, something will have to give. The people of western Oregon can have lovely forests and marbled murrelets or they can have low taxes—but not both.

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Cities

Rise of the super-mayor

Mar 6th 2008 | LOUISVILLE AND TUCSON
From The Economist print edition

How mayors of American cities are coping with suburban growth

JERRY ABRAMSON'S domain is six times bigger and contains twice as many people as it did in 1985, when he first claimed his city's top office. The longest-serving mayor in Louisville's history now oversees not just urban areas, from the old rubber plants to the newly hip Butchertown, but suburban subdivisions and farms. And still Mr Abramson's influence grows. It now extends almost as far as it is possible to see from downtown's National City Tower; it even reaches across the Ohio river into southern Indiana.

Until recently Louisville seemed to be following the path of many industrial cities. Its factories were shedding workers. Middle-class whites were drifting to the suburbs and beyond. Between 1960 and 2000 the city's population dropped from 391,000 to 256,000. For the city to prosper, Mr Abramson realised, it must work with its neighbours. Ever since he took office the relationship has become closer.

In 2003 Louisville joined forces with surrounding Jefferson county in the biggest such merger since the 1970s (Indianapolis and Nashville, for example, also have consolidated city-county governments). Mr Abramson, who had served his three terms as city mayor, easily won the top job in the new "Louisville Metro". Since then he has streamlined public services and accelerated the redevelopment of downtown Louisville. The city's core is dotted with new museums. A planned cluster of towers designed by OMA, a fashionable architectural practice, will be Kentucky's tallest. In a forthcoming report for the Brookings Institution, a Washington, DC, think-tank, Carolyn Gatz and Edward Bennett commend it as a model for other recovering cities.

Most striking is the development of a shared economic fate. Greater Louisville Inc, the metropolitan chamber of commerce, has helped companies like Geek Squad, a computer-service outfit, move beyond the city's borders. "It's better that a company locate in the next county over," Mr Abramson says, "than we lose it to Chicago or Atlanta, Nashville or Cincinnati."

Increasingly, co-operation extends across the Ohio river. At present Louisville and Indiana are linked by two ageing, congested bridges—a big problem for a city that claims to be a logistics hub. Greater Louisville Inc has joined with its equivalent in southern Indiana to promote plans for two new bridges, and is considering whether, and how, to share revenue from a new industrial park in southern Indiana.

Mr Abramson is not the only regional power-broker to emerge from America's cities in the past few years. Richard Daley of Chicago and John Hickenlooper of Denver have both cultivated their fellow mayors in neighbouring suburban towns. Mr Hickenlooper secured their support for a big extension of commuter railway lines, which local voters (generally a tax-averse bunch) duly approved in 2004.

Mayors are forming alliances with nearby settlements mostly because they have to. Few cities can now expect to dominate their hinterlands simply by virtue of being big. Across America suburbs are strongly competing for people, offices and cultural centres. Many mayors quietly worry that their cities will turn into nightmarish Detroits, with a rotten core and a choice collection of the region's most troubled residents. The mayor of Tucson, in Arizona, has openly said so.

Trouble in paradise

Tucson is one of the sunbelt's rustiest cities. Its population is growing much more slowly than that of Phoenix, to the north, or Albuquerque to the east. It is poorer and more Hispanic than its surroundings. Tucson accounts for just over half the population of 9,000-square-mile Pima county. But probably not for long: between 2000 and 2006 some 71% of the county's population growth and more than half of its job growth took place outside the city. "We get all the negative externalities and none of the positive ones, except for sales taxes," complains Mike Hein, the city manager.

Pima county's enormous size means a Louisville-style merger is out of the question. And suburbs have become wary of "annexation"—the legal incorporation of adjoining areas which is the traditional western method of coping with growth beyond city borders. Which leaves co-operation the only option. Bob Walkup, Tucson's mayor, has helped end a long struggle between the city and county governments. They now work closely to attract new businesses and write transport policy. In Arizona and elsewhere, suburbs may be unusually susceptible to courtship just now. Some are beginning to acquire urban traits: more Latinos now live in Chicago's suburbs than in the city proper. The foreclosure crisis has hit expanding suburbs hardest, wrecking their budgets. Meanwhile, cities have cleaned themselves up and cut crime. In Tucson, burglaries fell by a quarter between 2001 and 2006. In the surrounding suburbs of Oro Valley and Marana they more than doubled, though admittedly from a low base.

Like Mr Abramson, Mr Walkup is now focused on downtown. Tucson's core is singularly bleak and unimpressive. But the city has extracted tax concessions from the state that will help it to build a hotel and an arena, and expand its convention centre. Expect more of that, if Mr Walkup gets his way. City mayors have proved they can work with suburbanites to solve common problems. Their next challenge is to convince them that both will be stronger with a beating heart.

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Ferries

The rusting armada

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From The Economist print edition

Washington state's ferry system is in dire straits

WASHINGTON state runs the largest ferry system in America. Each year 24m commuters, tourists and others board picturesque green-on-white boats and travel between islands in the state's north-west reaches, or across the miles-wide fjord called Puget Sound that faces the city of Seattle.

But the ferry system has sprung some leaks—literally. In November 2007 four 80-year-old boats were yanked from service because their hulls were rusting. That left small towns such as Port Townsend on the Olympic Peninsula without tourists and shoppers. A small ferry borrowed from a nearby county has entered into stopgap service, but the craft is no match for the rough seas of late winter and must often stay in port.

Since then, one more ferry has been taken out of service on a route into Seattle, again because of rust; four more need hull work; two inadvertently collided with berths; and one was hit by a large wave that submerged the bow, knocked out a watertight door and flooded the passenger area. Some of this is bad luck, but it is difficult to ignore the fragility of the system. At present there are no backup boats, which means the fleet is pushed to its limit.

Ferry officials hope to replace 18 of the current 21 boats over the next 30 years, but that will cost billions. Ferries already hoover up a disproportionate 11% of petrol-tax revenue dedicated to the state Department of Transportation, which spends $400m a year operating them. But even with that the system is cash-strapped, because voters in 1999 threw out a tax on car-licence plates that had put $67m a year towards the ferries. Higher fares have not made up the shortfall. Money to replace the rusting boats has been voted, but must come from other ferries' budgets.

Mary Margaret Haugen, a state senator who chairs a transport committee, notes that in 1959 legislators narrowly defeated a proposal to build one or more long bridges across Puget Sound that could have cut out the need for most of the ferries. Those bridges would probably have been floated on pontoons, the only feasible design for spanning wide, deep bodies of water. In 1979 a similar bridge in the state sank in a storm. At least the ferries have not achieved that dubious distinction.

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Lexington

Obamaworld versus Hillaryland

Mar 6th 2008
From The Economist print edition

The contenders are battling over the soul of the Democratic Party

Illustration by Kevin Kallaugher

Get article background

JOHN EDWARDS has been saying since 2004 that there are two Americas—the America of the rich and privileged and the America of the poor and put-upon. The results of March 4th proved that there are also two Democratic Parties.

A famous political distinction exists between "wine-track" and "beer-track" Democrats. Wine-track Democrats have traditionally supported reform-minded liberals such as Gary Hart and Paul Tsongas. Beer-track Democrats have preferred more practical-minded pols. Walter Mondale famously hammered the nail into Gary Hart's coffin when he stole a line from a hamburger advertisement and asked "Where's the beef?"

Part of Bill Clinton's genius was to bring the wine-drinkers and beer-drinkers together. This was, after all, a man who went to Yale and Oxford but who grew up the child of a widow in the backwoods of Arkansas. Yet this year's Democratic primaries have burst the party asunder once again.

Obamaworld is a universe of liberal professionals and young people—plus blacks from all economic segments. Hillaryland, by contrast, is a place of working-class voters, particularly working-class women, and the old. These are people who occupy not just different economies but also different cultures. How many white Obama voters eat in Cracker Barrel or Bob Evans? And how many Clinton voters have a taste for sushi?

These groups could hardly have a more different view of politics. Mr Obama's supporters are, mostly, the liberal version of "values voters". They are intensely worried about America's past sins and its current woeful image in the world. They regard Mr Obama as a "transformational" leader—a man who can, with one sweep of his hand, wipe away the sins of the Bush years and summon up the best in their country.

Mrs Clinton's supporters, by contrast, are kitchen-table voters. They wear jackets emblazoned with the logos of their unions. They work with their hands or stand on their feet all day. They have seen their living standards stagnate for years, and they are worried about paying their bills rather than saving their political souls.

This helps to explain one of the biggest puzzles in the campaign—the fact that momentum is so fleeting. During Mr Obama's 11-state winning streak it looked as though he was eating into Mrs Clinton's core support in the white working class. He did reasonably well with that group in the Potomac states (Maryland and Virginia) and extraordinarily well with them in Wisconsin. He also secured endorsements from important unions. But Ohio has reversed that. White working-class voters are simply not quite comfortable with what Mr Obama is selling.

The battle for the Democratic Party is so bitter because it is a battle over culture. Mrs Clinton's supporters look at Mr Obama's and see latte-drinking elitists. Mr Obama's supporters look at Mrs Clinton's and smell all sorts of ancestral sins, not least racism. The two groups neither like nor respect each other.

There are actually good reasons for irritation on both sides. The Obamaites are not just otherworldly. They are also weirdly cultish. All the vague talk of "hope" and "change" is grating enough. But many Obamamaniacs want something even vaguer than this—they want political redemption.

It is certainly impressive to see 20,000 people queuing for hours to see a politician. But should they worship their man with such wide-eyed intensity? And should they shout "Yes we can" with such unbridled enthusiasm? The slogan, after all, reminds any parent of "Bob the Builder", a cartoon for toddlers, and Mr Obama himself rejected it as naff when it was first suggested to him. His supporters are rather like high-school nerds who surround the coolest kid in the class in the hope of looking cool themselves.

But there are also good reasons to be irritated with Mrs Clinton's beer-track Democrats. Blue-collar workers have certainly had a hard time of it. The Cleveland rustbelt is a decaying monument to good jobs that have been shipped abroad or mechanised out of existence. But one of the tragedies of this campaign is that both Mr Obama and Mrs Clinton have decided to ignore Bill Clinton's message—that the only way that America can remain competitive is to prepare people for new jobs rather than cling on to old ones—and instead engage in a silly competition to see who can bash NAFTA hardest.

Brains, not brawn

The final reason why the battle between the rival supporters will tear the Democratic Party apart is that the balance of power within the party is shifting. Mrs Clinton's Democrats have dominated the party since Franklin Roosevelt's time. They have hired a few eggheads to do the maths. But they have never let them get the upper hand. And they have repeatedly seen off challenges by "new class" Democrats. This year's election is arguably their last stand.

Economic change is relentlessly shrinking their base: manufacturing jobs are in decline at a time when brain-working jobs are expanding. And Mr Obama has shifted an important proportion of the old Democratic alliance—black Americans—to his column. He is also bringing large numbers of college-educated young people into the party who have little in common with old-style Democrats. One of the ironies of the current campaign is that Mrs Clinton's chief strategist, Mark Penn, has been one of the loudest voices on the left arguing that the party's future lies with brain rather than brawn. He must now be fervently hoping that he is wrong.

The great challenge for the Democratic Party in November will be to put this coalition back together. But the bitter fight in the months to come will widen the already gaping divide. John McCain could not be better positioned to pick up the pieces.

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Colombia and its neighbours

On the warpath

Mar 6th 2008 | BOGOTÁ, CARACAS AND QUITO
From The Economist print edition

Colombia is moving closer to breaking the FARC—unless Venezuela stops it

EPA

Get article background

ON FEW, if any, other occasions has a head of state issued detailed orders for military mobilisation as jauntily as if he were ordering pizza, and on live television. That is what Hugo Chávez, Venezuela's president, did on March 2nd, after Colombian forces bombed a camp just inside Ecuador, killing Raúl Reyes, a senior commander of the Revolutionary Armed Forces of Colombia (FARC) guerrillas.

"Minister of defence!" bellowed Mr Chávez, on *"Aló Presidente"* ("Hello President"), his weekly radio and television programme. "Send me ten battalions to the border, including tanks." He also ordered the forward deployment of his new Russian fighter-bombers, threatening that if Colombia's president, Álvaro Uribe, tried a similar raid on Venezuelan soil he would "send over the Sukhois". The next day he broke diplomatic ties with Colombia.

Venezuelan troops (pictured above) and tanks duly moved to the more populated points of the long border between the two countries. Customs officials halted Colombian trucks at the busiest crossing point, between Cúcuta and San Cristóbal.

What made this performance odd was that it was Ecuador, not Venezuela, whose sovereignty had been violated. True, Colombia has often accused Venezuela of harbouring guerrilla leaders and tolerating camps near the border similar to the one bombed in Ecuador. But did Venezuela's president have a guilty conscience?

"Maybe he knew what was coming," wrote Teodoro Petkoff, a guerrilla leader in the 1960s who now edits an opposition newspaper in Caracas. Mr Chávez's apparent over-reaction was a pre-emptive attempt to "throw a veil over the revelations he suspected might come from Raúl Reyes' computer," suggested Mr Petkoff.

With Ecuador's president, Rafael Correa, following Mr Chávez's lead, this week's events sent Latin America's diplomats scurrying to prevent war enveloping the neighbourhood. But they also laid bare that Colombia's government is coming close to breaking the back of the FARC, and in the process threatening to shine light on its murky relations with neighbouring governments.

When Mr Uribe took office in 2002, the guerrillas were rampant. His predecessor had just halted peace

negotiations because the FARC had used a "demilitarised" zone created to host the talks as a base for recruitment and for kidnapping (many of the politicians it has held hostage were seized during the talks). The guerrillas had some 17,000 troops; they blocked main roads and bombarded small towns, kidnapping and killing almost at will. To make matters worse, the state's inability to provide security had spawned murderous right-wing paramilitary groups.

Mr Uribe's "democratic security" policy has achieved a dramatic change. By expanding the security forces, he has driven the FARC from populated areas, while persuading most of the paramilitaries to demobilise. Officials reckon they have reduced the FARC's ranks to fewer than 11,000. But the guerrillas withdrew to the vast tropical lowlands, to areas they have controlled for 40 years. There they resisted a two-year offensive by 18,000 troops. The army could not get near the FARC's seven-man governing secretariat, of which Mr Reyes (the *nom de guerre* of Luis Edgar Devia) was a member.

Seeking the secretariat

Thwarted, the security forces refined their strategy. They put more effort into seeking the FARC's leaders using information from guerrilla deserters and infiltrators, and from sophisticated bugging equipment provided by the United States. Over the past year, this has started to pay off. Two FARC regional commanders have been killed and one captured. In January and February alone, the army claims to have killed 247 guerrillas and captured 226, with another 360 deserting. This pressure has pushed FARC units to the borders with Ecuador, Venezuela and Panama.

Last month the government received a tip-off that Mr Reyes was in a camp less than two kilometres (1¼ miles) inside Ecuador. Mr Uribe authorised a bombing raid by Brazilian-made Super Tucano aircraft, which killed at least 21 guerrillas. Colombian troops then crossed the border to recover Mr Reyes's corpse—and his laptop computers. (They left three wounded women guerrillas unattended.)

Most Colombians were jubilant that the government had struck at the very top of the FARC at last. Mr Reyes handled the guerrillas' relations with the outside world; he was one of three deputies to Manuel Marulanda, the FARC's elderly leader. For the first time the security forces have shown that they are capable of infiltrating and defeating the guerrillas through systematic strikes, said Román Ortiz of Fundación Ideas para la Paz, a Bogotá think-tank.

Mr Uribe doubtless thought that Mr Correa could be mollified over the cross-border raid. But spurred on by Mr Chávez, Ecuador's president sent 3,200 troops to the border and cut diplomatic ties. He demanded an emergency meeting of the Organisation of American States (OAS) to condemn Colombia, and set off on a tour of regional capitals seeking support.

The laptop lode

Almost as important as the killing of Mr Reyes may be the capture of his laptops. Apart from inside information on the FARC, according to Colombian officials, they contain documents which—if true—are

embarrassing to Mr Correa but highly damaging to Mr Chávez. As the FARC's top negotiator, Mr Reyes appears to have met representatives of many governments. According to one e-mail, he met Gustavo Larrea, Mr Correa's security minister last month. Mr Larrea is alleged to have proposed a formal meeting in Quito to discuss securing the border and negotiating the release of some of the FARC's 700-odd hostages. Mr Larrea said that Colombian officials knew of his meeting, which was purely to talk about the hostages.

Ecuadorean officials have long swapped complaints with their Colombian counterparts about their mutual inability to prevent the FARC from crossing the border. Ecuador claims to spend $160m a year containing the spillover. It is also angry about Colombia spraying coca fields on the border with weedkiller, which it says drifts south on to other crops.

Nevertheless, Ecuador has given some help to Colombia. Mr Correa claimed that last year his forces dismantled 47 FARC camps inside Ecuador and on three occasions carried out joint operations with Colombian troops. American surveillance aircraft still patrol over Colombia from an air base in Ecuador, although Mr Correa has promised not to renew the lease for this when it expires in 2009.

By contrast, Mr Chávez has recently been unambiguous in his support for the FARC. He fell out with Mr Uribe last year over his attempt to act as a mediator for the hostages. Since then he has cast aside his previous stance as an honest broker seeking a peaceful solution to Colombia's internal conflict. When the FARC turned over two hostages to him in January, Mr Chávez hailed the guerrillas as a "true army" whose status as belligerents should be recognised. No other government in the region, not even Cuba's, echoed this call. On *"Aló Presidente"* Mr Chávez held a minute's silence in honour of Mr Reyes, whom he said he had met three times over the years. He declared that Colombia needed to be "liberated" from its "subservience" to the United States.

AFP

Reyes: a trafficker in hostages

Another document allegedly on Mr Reyes's computer showed that Mr Chávez paid (or planned to pay) the FARC $300m. An (unrelated) e-mail to Mr Reyes suggested that the FARC were trying to obtain uranium for a "dirty bomb". All this prompted some far-fetched exchanges. Mr Uribe said that he would denounce Mr Chávez for "financing genocide"; in return, Venezuela accused Colombia's police chief, who revealed the contents of Mr Reyes's laptop, of being a "drug trafficker".

"This is...a microphone war," said General Raúl Salazar, a former defence minister. Like many other Venezuelans, he doubts that it will become a real one. That is not least because many army officers do not want war with Colombia and find Mr Chávez's actions an "embarrassment", said another former defence minister, General Raúl Baduel, who is now a prominent opponent of the president.

So what is Mr Chávez's game? One possible answer is his obsessive search for an external enemy to shore up his waning popularity at home. In December, his political blueprint for a socialist Venezuela, with indefinite presidential re-election, was defeated in a referendum. This came only a year after he won a second six-year term with 63% of the vote, and was the first time he had lost a national vote.

In November Venezuelans are due to vote for mayors and state governors. They are increasingly discontented about crime, an inflation rate that has surged to 25% and shortages of basic goods, including food and cooking gas. Because of Mr Chávez's mismanagement of agriculture, Venezuela imports much of its food from Colombia. Any lasting interruption of trade would hurt both countries (see chart). Reputable pollsters say that Mr Chávez's popularity has fallen well below 50%. Visible faction fights have broken out in his newly formed Unified Socialist Party of Venezuela.

Picking a fight with Colombia and supporting the FARC are unlikely to win him friends. One poll, by Hinterlaces, showed 89% opposed to a war and 87% opposed to the FARC. So the

reason for his military mobilisation may be to deter Colombia from moving against the FARC camps in Venezuela where some Colombian officials believe that Mr Marulanda is based. A more worrying, though improbable, hypothesis is that Mr Chávez, a former army officer, is throwing off all pretence at being a civilian democrat and, fearing that he may not remain in power for long, wants to launch an assault on what he sees as American imperialism and its regional stooge, Mr Uribe.

Although George Bush gave public support to Mr Uribe, other governments in the region, led by Brazil, tried to drive a wedge between Mr Correa and Mr Chávez. There were signs that this might work. On March 5th Ecuador agreed to an OAS resolution criticising but not formally condemning Colombia. The OAS also agreed to investigate the bombing. Once the region's diplomats have patched things up between these two countries they face another, more intractable problem: Mr Chávez, still with oil money but politically on the defensive, may have thrown in his lot with an outlaw army of drug-traffickers.

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NAFTA

An unreliable ally

Mar 6th 2008 | MEXICO CITY AND OTTAWA
From The Economist print edition

The neighbours fear American protectionism

Get article background

FOR the United States' two immediate neighbours, the Democratic Party's primary campaign has been an unedifying spectacle. Barack Obama and Hillary Clinton have tried to outdo each other in blaming the woes of middle America on the North American Free-Trade Agreement (NAFTA) with Canada and Mexico. Both candidates have called for the agreement to be renegotiated, to insert tougher labour and environmental standards.

To politicians across the borders that looks irresponsible. Since it came into force in 1994, NAFTA has benefited all three economies, raising cross-border trade and investment. That applies especially to Mexico. Not by coincidence, since the signing of NAFTA Mexico has become a democracy and achieved economic stability. This has not halted the flow of migrants to the north. But their numbers would almost certainly have been greater without the agreement—or if its labour clauses were tougher.

Officials in both countries want more economic integration, not less. Mexican ministers worry that the Democrats' rhetoric plays into the hands of the unreconstructed segments of their country's left. Last month these groups organised a protest, attended by tens of thousands of farmers, against NAFTA. Even though commodity prices are at record highs, the farmers worry that the final ending of import tariffs on maize and beans this year will hurt their livelihoods by opening the way to subsidised American imports.

Canada's prime minister, Stephen Harper, had a smart riposte for the Democrats. "Of course, if any American government ever chose to make the mistake of opening it [NAFTA], we would have some things we would want to talk about as well." Some Canadians particularly dislike a clause that allows companies to sue governments over regulations they dislike. Others argue that including Mexico has made it harder to sort out problems on Canada's border with the United States.

Politicians in both countries say they hope that both Democratic candidates will drop the NAFTA-bashing if they become president. This was seemingly confirmed by Mr Obama's economic adviser in a meeting with a Canadian diplomat, according to a leaked memo. But the leak may have damaged Mr Obama in this week's primaries. Faced with opposition accusations that the government was meddling in the American campaign, the following day Mr Harper promised to investigate the leak, which he said had been "blatantly unfair" to Mr Obama.

All this comes as Canada and Mexico are paying part of the price of the fecklessness of American financiers. The subprime slowdown has had a knock-on effect in both countries, although both are more resilient than in the past. This week the Bank of Canada cut its benchmark interest rate by 50 basis points—the biggest cut since 2001. It cited fears that the American slowdown would hurt the Canadian economy. That came days after Mexico's government, with similar worries, announced a $5.6 billion fiscal stimulus. The plan includes temporary tax breaks and electricity subsidies, undercutting a fiscal reform approved last year.

Cyclical slowdowns are one thing. What depresses politicians in both countries is their biggest trading partner's protectionist mood. A Mexican minister who is a strong supporter of NAFTA and who has been dealing with Washington for the past two decades says that on a recent visit to the United States' Congress he found an "almost xenophobic" mood of a kind that he had never before encountered.

That chimes with the frustrations of Colombia's government, which having negotiated a free-trade agreement with the United States has found it blocked by the Democrats in Congress. The message from the Democratic campaign is that "America is an unreliable ally", says a veteran Latin American diplomat who spent many years working closely with the United States' government.

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Entrepreneurs in Brazil

Betting the fazenda

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A different kind of risk-taking

SETTLE down at one of São Paulo's sushi bars and before long you will overhear a discussion about a start-up business making energy from obscure weeds, or some other bright idea for relieving members of the country's growing middle class of their disposable income. A field study of this kind displays a strong sample bias, but the point is clear: Brazil does not lack go-getters. Yet according to a more thorough survey backed by the International Finance Corporation (IFC), a sister organisation of the World Bank, Brazilian entrepreneurs are a strikingly different breed to their peers in Russia and China.

Overall, some 82% of entrepreneurs in all three countries came from families with at least one other entrepreneur. They also tended to be taller than the average. But there the similarities end. In particular, Brazilian entrepreneurs seem to have a much lower appetite for risk.

The researchers measured this by offering interviewees hypothetical bets of varying risk and reward, and offering a choice between cash now or more money at a later date. The entrepreneurs in the sample were no more risk-taking than other Brazilians, and were also more likely to retire if offered a windfall than their peers elsewhere.

Perhaps this lack of staying power is because there are many more pleasant things to do in Brazil than work. But why should Brazilians be so risk-averse? Simeon Djankov, one of the study's authors, hypothesises that in real life Brazilian entrepreneurs run bigger risks than those elsewhere. Starting a business takes 152 days and requires 18 different procedures, according to the IFC's annual worldwide "Doing Business" study. It takes 2,600 hours for a medium-sized business to keep up with its taxes each year. The same hypothetical business would pay 69% of its second-year profits in tax, if it played by the rules and did not receive special tax breaks.

Brazilian entrepreneurs show an unsurprising willingness to bend the law. "Essentially what determines good entrepreneurship in Brazil is the ability to navigate around the bureaucracy," suggests Mr Djankov. Eduardo Giannetti da Fonseca, an economist, concurs: "If Bill Gates had started Microsoft in a garage in Brazil, it would still be in the garage." Harder to explain than why Brazil's entrepreneurs are as they are is why they exist at all.

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China's parliament

You have permission to think freely

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China's prime minister lets a hundred flowers bloom. Well, ten

Reuters

IT MAY seem an odd time for China's risk-averse officials to be talking about political change. Yet at the opening of the country's annual session of parliament on March 5th the prime minister, Wen Jiabao, echoed recent calls in the state-owned media to "liberate our thinking", even as he gave warning of a difficult year ahead, with threats from inflation and from America's subprime mortgage mess.

This year's session of the National People's Congress, as the legislature in known, comes at a critical time. It marks the start of a new five-year term of government (it will elect Mr Wen to serve until 2013). China is also hosting the Olympic games in August and celebrating 30 years of "reform and opening" in December.

In 1978 the late Deng Xiaoping launched China's great reform programme with a call to officials to emancipate their minds from Maoist dogma. In recent months, some Communist Party officials and liberal scholars have been using the 30th anniversary of that call to push for a new round of mental emancipation. Economic reform has made enormous strides, they say. Now it is time to turn to politics.

In his two-and-a-half-hour speech Mr Wen told nearly 3,000 delegates in the Great Hall of the People that China must "break the shackles of outdated ideas" and "boldly explore new ways". As is the way of things in China, the words were vague; Mr Wen did not spell out what he meant by "thought liberation" and he did not offer any strikingly bold initiatives. Yet the intention was clear and these vague exhortations will fuel debate in the months ahead. In the build-up to the Olympics, Chinese leaders are anxious to preserve stability (not to mention one-party rule). But they appear ready to think about making the party a bit more accountable. This, they hope, might reduce social tensions caused by rapid economic change.

Mr Wen's immediate problem is inflation, which in January reached an 11-year high of 7.1%. He set a target of 4.8% for the year, the same rate as in 2007, when fast-rising food prices began pushing up the index. "Upward pressure" on prices, he said, would remain great and holding down inflation would be "difficult". Stephen Green of Standard Chartered Bank said in a note to clients that Mr Wen's target looked "dangerously unattainable".

Mr Wen said there were also increasing uncertainties in the world economy that could affect China. In addition to America's subprime woes, he mentioned the falling value of the dollar (increasing the cost of Chinese goods in America) and the high prices of grain, oil and other commodities. China must be "fully prepared" for global economic risks, he insisted. But he also said a "primary task" this year would be to prevent the economy (which grew by 11.4% last year) from overheating. This year's target is 8%, but GDP targets are often set far lower than officials expect in order to discourage reckless investment.

Few are expecting much change on the political front in the months ahead. But Mr Wen wants to see checks on government authority strengthened. “Civic organisations” (to party officials the term NGO sounds too much like organised opposition) would be given a role in “voicing the concerns of the people”, he said.

Officials are keen to stress the importance of bureaucratic changes that are expected to be endorsed by delegates in the coming days. These will involve creating new “super-ministries” that will merge the functions of some existing ones. The health ministry, for example, is likely to take over the food and drug agency. A new transport ministry will absorb the communication ministry (mainly responsible for roads) and the general administration of civil aviation.

But the difficulties surrounding even this limited reform (which leaves the party's rule totally unchallenged) suggest that more sensitive political changes will be slow to unfold. The railway ministry, for example, is reported to be holding out against absorption. China has no energy ministry; many officials have long said that it needs one. But powerful departments with a stake in energy are resisting the idea.

Recent talk of “thought liberation”, however, has gone far beyond the need to shake up hidebound bureaucrats. Much discussion in the state media has centred on a book published late last year by a group of scholars including several from the heart of the citadel, the party's academy for senior officials, China's equivalent to France's ENA. The work, whose abbreviated title is “Storming the Fortifications”, tactfully supports the party's continued monopoly of power. But it outlines “urgent” steps for political reform in unusual detail: turning the legislature and courts into “modern power balance mechanisms” by 2016 and creating a “modern civil society” with flourishing NGOs and religious groups by 2020. Freeing up the press, it says, would also help.

Wang Yang, the recently appointed party chief of the southern province of Guangdong, has been a prominent advocate of “thought liberation”. Mr Wang, who is also a member of the ruling Politburo, has called for a “new round of mass discussion” of the idea. He used the term at least 22 times in a speech to Guangdong party officials in January, according to the Chinese media.

As an example of thought liberation, the press has enthused about a government adviser in the provincial capital, Guangzhou. Last month he called for the resignation of railway-ministry officials over their handling of the transport chaos that ensued after severe weather at Chinese new year. Such an open attack on senior officials by a prominent figure is rare in China. Even the party's main mouthpiece, the *People's Daily*, has endorsed his outspokenness. China's leaders may soon regret their encouragement.

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India's budget

Write-offs as high as an elephant's eye

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A generous budget, but not a prudent one

EPA

Bags of debt relief

Get article background

ANGANWADI (courtyard) centres look after infants and pregnant women in India's villages and slums. Those who run them feed the children in their care yellow *dal* to guard against malnutrition and weigh them regularly to keep track of their growth. They help get them immunisation jabs and lead them in songs. Many say they take great pleasure in their work, which is just as well since the stipend is a meagre 1,000 rupees ($25) a month.

But on February 29th India's finance minister announced he would raise the monthly stipend of *anganwadi* workers to 1,500 rupees. It was one of innumerable benedictions dispensed in his budget, the last before the governing United Progressive Alliance, led by the Congress party, has to call an election. Palaniappan Chidambaram had 7.5 trillion rupees to spend. His speech sprawled over 187 paragraphs, stopping to quote an ancient muse, two dead prime ministers and one live one. He found time to protect India's tiger, exempt earnings from pot plants, and tax unfiltered cigarettes as heavily as filtered ones.

Mr Chidambaram's coffers are full, thanks to India's fine economic performance. The economy is expected to grow by 8.7% this fiscal year, which ends on March 31st, having grown by 9.6% and 9.4% in the previous two. The hills are alive with the sound of tax revenue. The exchequer will take 24% more this year than last.

These buoyant revenues have allowed the finance minister to meet (give or take) the fiscal rules his government wrote for itself in 2004. He has narrowed the central government's deficit to 3.1% of GDP this fiscal year, compared with 4.5% when he took office in 2004; he predicts a budget gap of just 2.5% in the year to come.

But these figures take no account of a forthcoming pay commission, which meets every decade or so to set the salaries of the government's vast retinue of employees (see article). Unlike *anganwadi* workers, these public servants expect generous remuneration. The commission's recommendations, due on March 31st, will cascade through the public finances. After the last one, the annual cost of public pay and pensions eventually swelled by 600 billion rupees.

Moreover, the economy is beginning to stumble. Corporate profits provided a quarter of Mr Chidambaram's revenues this fiscal year but industrial production is slowing. The slowdown may return India to about 8% growth, possibly a more sustainable rate. But Mr Chidambaram seems to view this as a shortfall from the 9-10% growth to which India is entitled. He cut duties on scooters and small cars to

boost demand. He also raised the amount people can earn before they pay tax.

One area of the economy that is undeniably stagnant is farming, which will probably grow by just 2.6% this year. Too many Indians still rely on the land, and too much of the country's arable land depends on the vagaries of the monsoon. Over 17,000 farmers killed themselves in 2006, according to one estimate, often to escape unpayable debts.

Relieving farmers' debts, India's opposition parties decided, was a vote-winner. They resolved to bang on the doors of Mr Chidambaram's treasury, raising a racket that would carry them to victory in state polls this year, or even a national election in the autumn.

But the doors were already open. In his budget Mr Chidambaram promised to wash clean the slates of about 30m small farmers by the time the next monsoon falls. Another 10m larger landholders can choose to repay 75% of their debts, and have the remainder written off. The bail-out may not reach those on the verge of desperation, who tend to be bigger farmers taking gambles on cotton crops. Nor will it help those in hock to loan sharks, whose lending is beyond the government's reach. But by making it easier for farmers to take out fresh loans from reputable institutions, it may stop them turning to moneylenders in the first place.

Such largesse sounds wonderful, but a dramatic cancellation of loans could raise doubts about the rural-credit culture. Loan forgiveness, says Y.S.P. Thorat, a former chairman of the National Bank for Agriculture and Rural Development, is like “hot milk. You have to keep blowing on it.”

If managed properly, however, it should not do too much damage to “repayment ethics”, he says. The kind of small farmers targeted by the scheme tend to be the most reluctant to default, he argues. They are “too much in awe of the system” to abuse it.

The write-off will put another burden on India's public finances. But it succeeded in wrongfooting the opposition parties, who did not expect such generosity. The farmers themselves were cannier. In the months leading up to the budget, Mr Thorat says, there was a noticeable slowdown in loan repayments.

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Japan's regions

The puzzle of power

Mar 6th 2008 | KUMAMOTO
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Japan's local governments are unhealthily dependent on its national one

THE overarching puzzle of Japanese politics over the past half-century is why democracy has not produced a competitive system in which political parties alternate in power. The Liberal Democratic Party (LDP), which is little loved, has been in power for all but ten months since its formation in 1955, with help from a shifting cast of junior allies. Last summer the opposition Democratic Party of Japan (DPJ) won unprecedented control of the upper house of the Diet (parliament). But the LDP and its coalition partner, New Komeito, still control an overwhelming two-thirds of the lower house and, though the opposition is frustrating efforts by the LDP to pass a budget—hoping to precipitate a general election—its leaders admit in private that they do not expect to break the ruling coalition's majority, at least not yet.

For one answer to the puzzle, look at the relationship between the centre and the regions. Japan has a rich array of local governments: there are 1,800-odd municipal governments and 47 prefectural ones. Yet more than any big rich democracy, Japan concentrates political power and financial resources at the centre. Masayasu Kitagawa, a modernising former governor of Mie prefecture, reckons that four-fifths of spending at the prefectural level and two-fifths at the municipal level is mandated by central government.

That breeds an unhealthy client-patron dependency at every level. In local elections, politicians need to bring home the pork if they are to keep local supporters happy. This means pleasing farmers who depend on subsidies and construction and road-building companies who benefit from infrastructure contracts. In turn, LDP barons—and the powerful bureaucrats who are their allies—rely on local politicians to deliver the votes in national elections. Pork is their reward. This gives the incumbent party a huge advantage, but it also ensures that the LDP remains a party of patronage more than of policy.

In such a system, says Mr Kitagawa, local governments act as mere contractors to the centre. It is the chief cause of the wasteful infrastructure spending that blights Japan's landscape. In Kumamoto, for example, a struggling prefecture on southern Kyushu island, one local official admits that unnecessary

new bypasses, financed partly by the central government, are hastening the decline of town centres, which get little government investment. Meanwhile, he says, a planned costly extension of the bullet train, on which the prefecture pins its hopes, is just as likely to make it easier for businesses and young people to flee to the thriving big city of Fukuoka as it is to attract them.

The LDP has tried to improve things. Junichiro Koizumi, the reformist prime minister between 2001 and 2006, slashed public spending on infrastructure, which at its peak was three or four times higher than in other rich countries. But it remains high. He also introduced measures that were supposed radically to decentralise power. Yet, apart from saving the central government money, they have not worked. Although Tokyo claimed it was giving localities greater autonomy, in practice it slashed subsidies, leaving local governments tottering under a weight of debt incurred as a result of projects ordered by the national government years before.

One cautionary tale still haunts debt-laden local governments: the fate of Yubari, a former mining town in Hokkaido. When its mining industry collapsed, Yubari sought to reinvent itself as a tourist spot, building a theme-park in an old mine, starting an international film festival and promoting ludicrously expensive Yubari melons (one pair sold for ¥2m, or $19,000). But all the promotion cost money. In 2005 Yubari went bust with debts worth 14 times annual tax revenues. Their precarious financial position leaves localities more dependent, not less, on the goodies Tokyo is minded to hand out, reinforcing patronage in many places.

But not everywhere. Many city-dwellers, in particular, resent their taxes going towards special interests. They favour policies that promote market reforms and consumer interests. The DPJ has drawn most of its support from this base, as did Mr Koizumi. Indeed, the party's leader, Ichiro Ozawa, has picked as his budget fight this month one of Mr Koizumi' s pet hates: a "temporary" levy of ¥24, raised for over 30 years on every litre of petrol and given over to road-building and maintenance, feeding a huge road-building lobby.

Typically of Japanese politics, Mr Ozawa's fight is not based on principle. The DPJ's manifesto for the upper-house elections bore no mention of the levy. Meanwhile Mr Ozawa is promising rural voters even more goodies than the LDP—which is perhaps why it does not emphasise decentralisation more.

A new broom

Frustration is gathering among reformers in both main parties, and has found expression in a new cross-party pressure group that includes over 100 Diet politicians and many local reformers, such as Mr Kitagawa. It had its first get-together on March 3rd. Called *Sentaku* (an untranslatable word which basically means both choice and washing things clean), it wants to decentralise, limit the power of the central bureaucracy and—a novel thought—encourage parties to compete in elections on the basis of articulate manifestos.

To some commentators, *Sentaku* promises salvation at a time when Japan's politics is in a deep despond. Perhaps. But if its members cannot effect change from within their own parties, how will they be able to do it from outside?

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Nepal

Ballot box takes wing

Mar 6th 2008 | KATHMANDU
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After a regional peace deal, hopes rise for twice-postponed elections

Get article background

A CARTOON in Nepal depicts a green ballot box as a bird taking to the sky. Its white wings are peppered with bandages and plasters—but it flies. After the government's agreement with an ethnic alliance ended a regional strike on February 28th, Nepalis heaved a collective sigh of relief. Their politics have been tense since a peace agreement in 2006 ended a ten-year civil war. For more than a year, the country has suffered mass agitation in the south. But at last Nepalis believe that an election to a constituent assembly, now scheduled for April 10th, might finally happen, after two postponements. The assembly is supposed to write a new constitution, revamping the rules of politics.

The accord dampened the anger of Madhesis, southern Nepalese who share cultural ties with each other and with India. They complain of being neglected by the Nepalese government. Fourteen months of protests created havoc in the flat farmlands of the south-east and south-west, and claimed scores of lives. In mid-February strikes shut the south down and blocked fuel deliveries to the whole country, worsening shortages of kerosene, gas, petrol and diesel. Two days after the Madhesi agreement the government signed another, with a second alliance of ethnic and regional groups.

The accords promise, extravagantly, that all ethnic groups will be proportionately represented in all government organisations, including the army. They also pledge that such groups will gain their own "autonomous regions", decentralising the country. These and other promises persuaded the Madhesi parties to join the electoral fray. Armed Madhesi groups were invited to talks.

Unsurprisingly, the accords are controversial in Nepal, a multi-ethnic country where ethnicity has just become an issue. The *People's Review*, a royalist weekly, is implacably opposed both to them and to the coalition government, which includes Maoist former rebels and which has all but abolished the monarchy. It has given warning of a new Kosovo in south Nepal. There is similar opposition from the left, whose small parties are in the coalition but were not consulted. Left and right alike accuse India of interference: some of the talks were held at the Indian embassy in Kathmandu.

Yet the accords do seem to have removed the main hurdle to the election. They have done so partly by making grand statements while keeping the details vague. These will be worked out by the new assembly. Many Nepalis point out that ethnic autonomy is not possible in a country where caste and ethnicity are geographically intermingled. But a move towards regional autonomy is possible. One of the main Madhesi parties is already welcoming defectors, some of them non-Madhesi, saying that it wants to focus its attention on the south in general, not on the Madhesis in particular.

With the troubles in the south set aside, more than 70 parties, from Maoists to die-hard royalists, have started campaigning in earnest for the constituent assembly. One of them is the Nepali Congress, the country's oldest and biggest party. Eleven of its candidates are close relatives of the prime minister. Some things, it seems, never change.

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The Philippines

Up the creek

Mar 6th 2008 | MANILA
From The Economist print edition

A twist to the usual tale of street protests

Reuters

Fascist out, the posters say

Get article background

ON FEBRUARY 29th several thousand anti-government demonstrators gathered in Manila to demand the resignation of President Gloria Arroyo. So far, so usual. But this time, they were joined by two former presidents, Corazon Aquino and Joseph Estrada, who know something about street protests. Mrs Aquino was made president by the "People Power" uprising of 1986; Mr Estrada was deposed by a similar uprising in 2001. Even by Philippine standards, their presence was unusual.

But this was only a demonstration. Street protests have never toppled a Philippine president without support from the armed forces. The military chiefs have said they support the constitutional order. Officers who have stepped out of line in the recent past have ended up looking more like foolish pranksters than serious threats.

The spur for the protests is the accusation that Mrs Arroyo's political allies—and perhaps her husband—were to receive kickbacks from an allegedly overpriced $329m contract with a Chinese company, ZTE Corp, to build a broadband network connecting government offices. The president cancelled the contract last year after questions arose about its propriety. All those implicated have denied any wrongdoing.

The controversy has persisted because the Senate is holding hearings about the contract. Compelling testimony of corruption in the corridors of power has enthralled the public. But the hearings have so far not put Filipinos in a mood to take to the streets *en masse* to remove an unpopular president. She was, after all, elected (though previous calls for her resignation were provoked by accusations that the vote was rigged).

It is unlikely that another "People Power" uprising is really what senators want. A number have ambitions to become president themselves in the election due in 2010. If Mrs Arroyo were to be removed by unconstitutional means, that election might not take place. Even if she were impeached and removed from office (which is unlikely, since impeachment proceedings have to be started in the lower house, which is under her control), she would be succeeded by her vice-president, Noli de Castro. He would be eligible to contest the 2010 election, and an incumbent would be much harder to beat.

The hearings allow wannabe presidents to keep themselves in the public eye. But they are learning that the safest way to become president and to remain president is to be elected—a lesson Mrs Arroyo is teaching them.

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Israel and the Palestinians

The bloody conundrum of Gaza

Mar 6th 2008 | JERUSALEM
From The Economist print edition

AP

The Israelis and Palestinians are trapped in a lethal stalemate, and the Islamists of Hamas refuse to be destroyed

Get article background

THE latest round of fighting in Gaza between Israel and Hamas, the Palestinian Islamist movement, showed how mere chance can make events spin out of control. In the preceding weeks exchanges of Palestinian rockets and Israeli missile attacks on Gaza, in which cause and effect had merged into a seamless continuum, had intensified. But they might have subsided again had one of the usually inaccurate home-made rockets, known as Qassams, not struck and killed an Israeli in Sderot, a town near Gaza—the first death of an Israeli civilian by rocket fire since last May. The response of Israel, which has been frustrated by its inability to stop the rockets, was an aerial and ground assault that killed at least 110 Palestinians over five days, for the loss of two Israeli soldiers.

As *The Economist* went to press, the Israelis had withdrawn forces and scaled down their attacks. But the surge of fighting threatened to kibosh the already flagging peace talks between Israel and the Palestinian president, Mahmoud Abbas, who rules the other, bigger bit of a would-be Palestinian state, in the West Bank. And it made it even harder for America's friends in the region to promote the cause of moderation elsewhere (see article).

The fighting in Gaza was the heaviest since Hamas took control last June. The Israeli army said that 90% of those killed were fighters. The Palestinian Centre for Human Rights in Gaza, on the other hand, says that half were unarmed bystanders and a quarter were children. Before the latest round, B'Tselem, an Israeli human-rights group, said Israel had killed around 350 Gazans since June, among them more than 100 civilians and children.

The killing provoked international outrage and prompted Mr Abbas to suspend the talks he has been conducting with Israel since November, after the two sides met in Annapolis. Though his Fatah party is Hamas's sworn enemy, his own fragile credibility among the Palestinians cracks a little more with each wave of carnage. Yet after a flying visit by Condoleezza Rice, the American secretary of state, he agreed to reopen the talks. His main claim to legitimacy among his people is that America and Israel recognise him as a partner for peace. If they withdrew their support he would probably be finished as a leader.

But the fighting caused both sides to edge closer to a full-scale war in Gaza. Israel's foreign minister, Tzipi Livni, said Israel would "change the rules of the game". Instead of beefing up attacks only when the Palestinian fighters did, and slackening off on the same basis, Israel would now keep striking at will.

For their part, the Palestinians drew on their stockpiles to fire 20 Iranian-made Katyusha Grad rockets, similar to those that Lebanon's Hizbullah used against Israel in 2006, and which they have fired only sparingly in the past. Some hit Ashkelon, a city north of Gaza that has largely escaped the Qassams, being at the edge of their range.

So a debate has sharpened over Israel's only two obvious options. These are a full-scale invasion to destroy Hamas and the militant groups and take control of Gaza, whence Israel evacuated its settlers and troops in 2005; or a ceasefire deal negotiated directly or indirectly with Hamas.

Those who favour talks with Hamas include former heads of all three of Israel's intelligence services: Ephraim Halevy, who ran Mossad; Shlomo Gazit of military intelligence; and Ami Ayalon, once head of Shin Bet, Israel's domestic security service, now a minister without portfolio. Shlomo Brom, a former head of the army's strategic planning, who argues for some kind of "accommodation" with Hamas, says such opinions are being voiced more and more among retired security men. An opinion poll in *Haaretz* newspaper at the end of February found that 64% of Israelis also favour talks with Hamas, at least for the purpose of arranging a ceasefire and an exchange of Palestinian prisoners for an Israeli soldier held captive in Gaza.

The cabinet seems divided. Ehud Olmert, the prime minister, said a massive ground incursion was "not imminent". Avi Dichter, the internal security minister, talked of "populist ideas which I don't agree with, and in my opinion no intelligent person does either." Ehud Barak, the defence minister, and Ms Livni sound a bit more gung-ho. But all publicly reject a deal with Hamas. Ms Livni hinted that a de facto ceasefire may be possible, but not until after the smuggling tunnels under the Gaza-Egypt border, through which Hamas gets its weapons, are blocked up. The arms flow has stoked tension between Israel and Egypt's president, Hosni Mubarak, who is trying to juggle co-operation with Israel against the growing strength of the Muslim Brotherhood, Hamas's parent movement, in Egypt.

The dilemma is that both an invasion and a negotiation with Hamas could scupper the Israeli-Palestinian peace process—the first because it might make it politically impossible for Mr Abbas to talk to Israel, the second because it would risk sidelining him and Fatah if Hamas were brought into the equation. But an invasion, besides costing hundreds more lives, could also leave the army policing a hostile population in Gaza indefinitely—just what made Israel evacuate it three years ago.

Mr Abbas suggested a way to save the day (and his own skin) by offering to mediate between Israel and Hamas on a ceasefire. But so far there seems to be little support in America or Israel for anything that would take the heat off Hamas, which they have been trying to destroy ever since it won the Palestinian election two years ago. Officials at America's State Department have apparently been meeting people who meet Hamas. But it is unclear whether this presages a shift in policy. So the clashes are likely to continue, bringing closer the day when a chance Qassam or Katyusha does enough damage—what Israeli policymakers grimly refer to as "the kindergarten scenario"—to prompt an all-out Israeli response.

A more peaceful variant would mean Israel and America ditching the idea that Hamas can be destroyed and asking Saudi or Egyptian mediators to broker a ceasefire and prisoner exchange between Israel and Hamas. In the longer run, a new effort may have to be made to cut a deal, more precise than the one struck in Mecca last year, between Hamas and Fatah. Hamas would have to agree to let Mr Abbas continue to negotiate with Israel, and both Palestinian parties would agree to hold new elections—and to respect their results. At present, that scenario looks fanciful. But over time it may become more realistic.

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Economist.com WORLD MIDDLE EAST & AFRICA

Arab diplomacy

The pro-Westerners feel stumped too

Mar 6th 2008 | CAIRO
From The Economist print edition

America's Arab and Israeli friends in the Middle East are finding diplomatic solutions hard to find or sell

NO STRANGER to crises, the Middle East is having to cope with several at once, ranging from bloodshed in Gaza and the stalling of Palestinian-Israeli peace talks to the struggle over Lebanon, Iraq's war and Iran's nuclear ambitions. But the puzzle's pieces are interlocked. Troubles in one place affect those in others, as local tussles increasingly reflect a wider regional contest that pits a fading American administration and its anxious allies against a robust "resistance" front aligned with Iran.

Last week's bloody flare-up in Gaza, which left more than 110 Palestinians and two Israelis dead, was a case in point. The high Palestinian death toll and a widely aired threat by an Israeli minister to unleash a *shoah*—a Hebrew biblical term meaning holocaust—on the Palestinians in Gaza, had repercussions far beyond the Qassam rockets' range. America's secretary of state, Condoleezza Rice, had been expected to come to the region to nudge forward the talks between Israel and the rump Palestinian government in the West Bank. Instead, she arrived to find them suspended, though they will now resume.

Gaza's agony cast a dark shadow in neighbouring Arab capitals too. In the lead-up to an annual summit of Arab leaders, scheduled for the end of this month in the Syrian capital, Damascus, America's allies had been manoeuvring to squeeze Syria, which they blame for meddling in Lebanon, for undermining Mr Abbas's peace efforts and for supporting non-Arab Iran. Egypt and Saudi Arabia had been corralling support from like-minded governments to boycott the meeting, unless Syria prompted its protégés in Lebanon to accept an Arab League plan to resolve the long-festering constitutional crisis over the choice of a Lebanese president.

But the gory images from Gaza may have trumped such plans. With an internet poll on the popular al-Jazeera channel's website showing that 87% of Arabs back more rocket attacks on Israel, pro-Western Arab leaders sought to fend off charges that their hostility to Hamas made them partners in Israeli crimes, as an Egyptian MP claimed in a passionate speech. America's friends were further embarrassed by an investigative report in *Vanity Fair* magazine suggesting that America had plotted, following Hamas's victory in Palestinian elections in January 2006, to use security forces under Mr Abbas's control to oust the Islamists from power by force. Jordan and Egypt, both at America's behest, apparently armed and trained them.

Instead of focusing on Lebanon, the summit may now provide a grandstand for Syria, which backs Hamas, to berate fellow Arabs for failing to aid their stranded brethren in Gaza. There had been talk that the summit would see an Arab peace offer to Israel, broader than the one first made at a previous summit in Beirut, in 2002, which was scotched by Hamas's suicide-bombing of an Israeli restaurant soon after, provoking massive Israeli incursions into Palestinian towns. The Arab talk now is of conditioning any such move on Israel making unequivocal concessions, such as a freeze on building Jewish settlements—or new houses in them—on the West Bank, or a release of Palestinian prisoners.

In Lebanon, meanwhile, the beleaguered pro-Western parliamentary majority, which has faced a long insurrection by the Syrian-backed opposition led by the political-cum-military Islamist Shia group, Hizbullah, was further undermined by the arrival off the Lebanese coast of American warships. Intended to signal support for the majority, the show of force instead revived unhappy memories of previous American interventions in Lebanon, seeming to strengthen Hizbullah's contention that its critics are American puppets. Fearing similar shame by association, Egypt's government-controlled press played down Ms Rice's decision, announced during a stopover in Cairo, to release $100m in aid suspended by Congress due to Egypt's poor human-rights record.

The alliance of Iran, Syria, Hizbullah and Hamas also scored with the arrival of Iran's president, Mahmoud Ahmadinejad, in Baghdad for what was billed as the first peaceful visit by an Iranian head of state in four centuries (see article). Yet the tally in the proxy struggle between America and Iran has not

all been in the latter's favour. The UN Security Council, including Russia and China, on which Iran often relies to block American proposals, has just passed a third, more punishing, range of sanctions against Iran for failing to stop enriching uranium.

Arab nervousness about Iran's rise as a regional power has been increasing. But whenever American unpopularity in the region goes up due to its support for Israeli actions such as those against the Palestinians in Gaza, the task of pro-Western Arabs in facing down assorted rejectionists becomes harder. Hence their gloom.

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Iraq and Iran

Big brother comes to town

Mar 6th 2008 | ERBIL
From The Economist print edition

Iran's influence in Iraq is likely to grow

Get article background

"YOUR mortars preceded your visit", read a placard held by a protester in Baghdad's Sunni Arab district of Adhamiya, demonstrating against the arrival of Iran's president, Mahmoud Ahmadinejad. The slogan echoed American allegations that Iran provides weapons to Shia militias—a rare example of Iraq's Sunni Arabs taking American assertions at face value.

But it was not just Iranian mortars that may have preceded Mr Ahmadinejad's visit to Baghdad. An array of Iranian consular officials, cultural exhibits, pilgrims and consumer goods had all come before him. The presidential visit—the first by any regional head of state since the American invasion five years ago—is only the latest sign that Iran is now the most influential of Iraq's neighbours, pushing aside nearby Sunni Arab states from which Iraq's Shia leaders still keep their distance.

During his two-day visit, Iran's president announced $1 billion in loans, as well as a clutch of trade pacts with his "brotherly" neighbour. As is his wont, he also played to the gallery, telling all foreign forces to leave Iraq and mocking American officials who come on short "stealth" visits by helicopter, quite different from his ceremonial procession through the city.

The visit underlined the changes since the 1980s, when Iran and Iraq fought an eight-year war in which as many as 1m people may have died. A former Iranian client, the Islamic Supreme Council of Iraq, may now be Iraq's biggest political party. Iran says it exports goods worth $2 billion to Iraq every year, from melons to air conditioners. Iran is becoming less of an historic adversary, more a big brother.

So why the mortars? Iran hotly denies the allegation. Some Western sceptics say the Americans' evidence is based largely on technical analysis that cannot be verified by outsiders. But many Iraqi officials and most American officers in areas where Shia militias are active are pretty sure that at least one of Iran's myriad security agencies is involved. Iran's Revolutionary Guards' Quds Force, say the Americans, supplies guns and bombs to Iraqi Shia militias, especially to groups that have splintered from Muqtada al-Sadr's Mahdi Army and have been conducting their own private war against the Americans in defiance of their fiery leader.

The big question is whether this has changed. Iraq's government says Iranian support has dropped off since the militias promised a ceasefire last August. But the Americans say that, though they are unsure if weapons are still coming in, they have recently arrested Iraqis who have been trained inside Iran to become trainers themselves. So even if Iran may be lowering its profile, its policy is the same. Some analysts reckon that Iran is building up a client network so that, in the event of an American attack on Iran's nuclear facilities, Iran could hit back in Iraq.

Most Iraqi Sunni politicians have a blunter opinion. They tend to rail against Iranian infiltration, and assume that Iran, whose population is far bigger than Iraq's, simply wants to dominate its neighbour. Many Iraqi Shias feel edgy, too, about Iran's intentions. And nearly all Iraqis, whatever their religious stripe, think Iran's influence will grow.

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South Africa

Skin-deep

Mar 6th 2008 | JOHANNESBURG
From The Economist print edition

Racism in the rainbow nation

Get article background

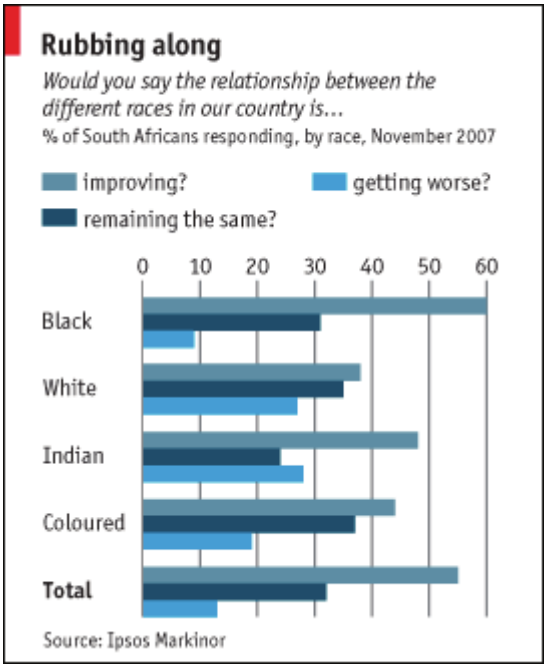
RACE is again on South African front pages and in the airwaves. A video film made by four white university students depicted a mock initiation of five middle-aged black cleaners into their student residence, showing them on their knees eating food on which one of the students had apparently urinated. The film, intended to undermine racial integration in student residences, sent shockwaves throughout South Africa and beyond.

It comes on the heels of several other ugly racial incidents. In January an armed white teenager went on a rampage in a rural settlement, killing four people, including a mother and her baby, apparently for racist motives. Last month Irvin Khoza, the black leader of the committee organising the football World Cup tournament in 2010, sparked angry reactions when he told a journalist to "stop thinking like a kaffir"—an offensive word for a black African. The Forum of Black Journalists, a press lobby, got into hot water for barring white colleagues from attending a meeting with Jacob Zuma, the ruling African National Congress's new president.

Fourteen years after apartheid, is the ideal of a rainbow nation fading? Not at all. South Africa has come a long way since the days of institutional racism. Its transition to democracy has been remarkably smooth, set against the country's bitter past. You hear of few incidents of racially motivated violence. The vast majority of South Africans want a non-racial democracy that respects people's differences. There are laws to punish unfair discrimination, and "black economic empowerment"—a positive-discrimination policy—seeks to redress past injustice.

Though the poor and unemployed remain disproportionately black, an emerging black middle class is slowly blurring racial and social lines. Once-segregated schools and universities now include students of all colours. Even at the formerly all-white University of the Free State, where the racist video was shot and where tuition was once in Afrikaans (the language of the early Dutch settlers), most students are now black. A rising majority of South Africans think that race relations are improving (see chart).

Yet South Africa is far from colour-blind. People of different races often eat in the same restaurants—but at different tables. Peaceful coexistence, which South Africa generally enjoys, does not mean integration. People in rural areas are even less likely to mix than those in large cities such as Johannesburg.



According to David Maimela of the South African Students' Congress, formerly white universities have paid only lip service to integration. The Freedom Front Plus (FF+), a small opposition party representing mainly Afrikaners, opposes what it calls "forced integration" of student residences and says that Afrikaners who fear their cultural identity and language are threatened are not being heard. But Tim du Plessis, editor of *Rapport*, a popular Afrikaans weekly, says that legitimate issues to do with language have been used as a pretext to resist racial integration.

Many white South Africans, both Afrikaans- and English-speaking, feel increasingly frustrated by affirmative action. Where Nelson Mandela inspired many of them with his national vision, his successors—including President Thabo Mbeki—have generally failed to do so. Many whites think the ANC is losing

the moral high ground, and are becoming more insular and withdrawn—or are just emigrating. At the same time, many of their black compatriots feel frustrated by the slow pace of change.

Yet most South Africans, whites included, genuinely abhor crude racism. The student video has shocked almost everyone, and has been condemned outright across the racial and political board, including by Afrikaans organisations and the FF+. The measure of South Africa's success is not whether it manages to eliminate racism—no multiracial country in the world has done that—but how it deals with it. Protests against the video incident have been contained and violence largely avoided. The four students may face charges. Mr Khoza of the World Cup committee has been upbraided. The South African Human Rights Commission is looking into complaints against the Forum of Black Journalists. Tseliso Thipanyane, the commission's head, says, "We should be actively engaging one another on issues of race, rather than wish it away."

Group intolerance is not just a black and white issue. A recent poll by TNS Research Surveys, a local outfit, finds that 42% of people living in shacks, facing the fiercest competition for jobs and services, feel threatened by "other cultures", far more than the national average of 29%. Attacks by black South Africans on Somali shopkeepers and hostility to Zimbabwean immigrants both appear to be rising. The housing shortage in the Western Cape adds to tension between Coloureds (mixed-race South Africans) and blacks. In a country as diverse as South Africa, all this is to be expected. The video incident has made everyone think harder about how to promote greater harmony.

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Somalia's fighting

Hitting the right target?

Mar 6th 2008 | NAIROBI
From The Economist print edition

Somalia gets no better—and America may be making matters worse

Get article background

THOUSANDS have been killed in Somalia in the past year, mostly in skirmishes between Somali government and Ethiopian troops on one side and loosely grouped insurgents, jihadists included, on the other. The death toll rose this week when at least one American Tomahawk cruise missile, apparently fired from a submarine off the Somali coast, obliterated a shack in a village called Dobley a few kilometres from the border with Kenya.

Some sources suggest the target was Saleh Ali Nabhan, a Kenyan alleged to have been involved in an al-Qaeda bombing in Mombasa, Kenya's main port, in 2002. Perhaps more likely, it may have been Hassan Turki, a Somali jihadist commander on America's terrorist list. If he was indeed at the end of the missile, the Americans will have done a big favour to Ethiopia, which has been hunting him down and may even have tipped them off. Mr Turki is said to hail from the ethnically Somali Ogaden region of eastern Ethiopia and has long been bent on setting up an Islamist caliphate of greater Somalia that would take in chunks of Ethiopia plus Djibouti and bits of north-eastern Kenya. Yet another reason for the attack may have been to stop jihadists from establishing a permanent camp near Dobley with the intention of infiltrating fighters into Kenya.

Since being crushed in conventional warfare at the beginning of last year, remnants of the Somali *Shabaab* (meaning youth), the armed wing of a short-lived Islamic Courts regime, have regrouped. Together with secular insurgents who want to rid the country of Ethiopian troops and win more power for the disgruntled sub-clans that are ill-represented in Somalia's government, the jihadists have kept Mogadishu, the battered capital, unstable and continued to launch hit-and-run attacks on towns across southern Somalia.

Feeble though it is, the Somali government does not seem under serious threat of being overthrown soon. Helped by the Ethiopians and the CIA, it has kept the jihadists on the hop. All the same, European and other diplomats monitoring Somalia have criticised the latest American attack. “This just isn't the way,” said one. There is no evidence that either Mr Nabhan or Mr Turki was killed. If, as villagers in Dobley say, children were among the victims, the jihadists' propaganda will benefit. Their idea of a caliphate may be fanciful, but they will be hard to defeat by missiles alone. They are certainly fervent, often shooting fellow Somalis for playing music or watching Western videos.

That is one reason why Somalia's new prime minister, Nur Adde Hussein, has been trying to woo more mainstream Islamists. After talks in Cairo last month, some Islamists, including former hardliners, broke with the *Shabaab* and indicated a willingness to accept the Somali government if there were a mechanism for the phased withdrawal of the Ethiopian troops who have been stationed in Mogadishu since the fall of the Islamic Courts government. Previously the Islamists had demanded unconditional Ethiopian withdrawal before talking. The Ethiopians say they are keen to go but do not want to leave a security vacuum. An American bid for UN peacekeepers looks unlikely to bear fruit before 2010, if ever. The present African Union force, led by Uganda, is unlikely to expand beyond 4,000 troops, a fraction of what is needed.

Somalia's leonine president, Abdullahi Yusuf, may be undermining Mr Adde's efforts by refusing to compromise with even milder Islamists. Mr Yusuf wants to persuade Saudi Arabia that he has made enough progress to warrant the release of the large sums it has pledged. If the obdurate president were dislodged, it might prompt more fighting, with parliament breaking up into ever more acrimonious factions. Or it might open the way to more serious talks with the milder Islamists and help isolate the jihadists, wherever they may be hiding.

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Correction: Kenyan peace deal

Mar 6th 2008
From The Economist print edition

In our report last week on Kenya ("A peace deal at last", February 28th), we referred to the president's "full four-year term". The constitution stipulates five years. Sorry. This error has been corrected online.

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Spanish elections

The coming pain in Spain

Mar 6th 2008 | MADRID
From The Economist print edition

The next Spanish government faces a much tougher time than the outgoing one

AFP

ANYBODY who is confident of the outcome of Spain's election on March 9th should recall March 14th 2004. Three days after Islamist terrorists bombed four Madrid trains, killing 191 people, voters unexpectedly handed victory to the Socialists' José Luis Rodríguez Zapatero. This weekend Mr Zapatero faces the electorate once again. Sober flags showing Mr Zapatero and his People's Party (PP) rival, Mariano Rajoy, flutter decorously along the two sides of Madrid's Castellana avenue, belying the bitter tensions between the two parties that have persisted since 2004. Opinion polls suggest Mr Zapatero will win—but the margin may be narrow.

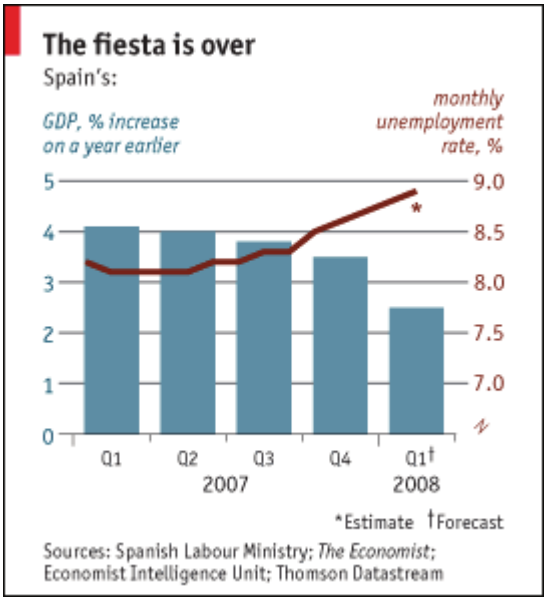
On the face of it, that seems odd. The past four years have been good for Spain. Growth has averaged almost 4%. Spain has been producing most of the jobs created in the euro area. In December Europe's number-crunchers said it had overtaken Italy in GDP per head. Mr Zapatero's decision to pull Spanish troops out of Iraq was popular, as were most of his government's social policies, such as legalising gay marriages. Spanish governments tend to be re-elected at least once, and the country is naturally left-of-centre. Yet Mr Zapatero does not appear to be reaping the rewards.

His PP and Socialist predecessors as prime minister, respectively José María Aznar and Felipe González, both won absolute majorities in their second terms. Even Mr Zapatero's closest backers consider that unlikely this time. Much will depend on turnout—anything above 70% will boost him. Yet, as one ally concedes, if he fails to win an absolute majority, that will be a mark of Mr Zapatero's failure as leader. One problem is his lack of inspiration and punchiness. But the colourless Mr Rajoy is little better. The consensus is that Mr Zapatero held his own in the first televised debates between the two men, and won the second.

Mr Zapatero's struggle to win re-election seems to be attributable to three broader factors. The first and biggest is, surprisingly, the economy, now a matter of deep concern for many Spaniards. GDP growth is slowing sharply, from 3.8% in 2007 to 3% (officially) or even as little as 2% (say pessimists) this year. Unemployment jumped in both January and February. Consumer confidence is at a 13-year low. And inflation has ticked up above 4%.

Plainly, the economy's apparently robust performance was more fragile than it seemed. It has depended heavily on

construction, which accounts for as much as 18% of GDP, nearly twice the share in other European countries. In recent years Spain has built more new houses than Britain, France and Germany put together. Now the property bubble has burst. In November new house-building requests fell by a quarter over a year earlier, says the Bank of Spain. House prices are dropping. No wonder voters feel glum.



The second factor weakening Mr Zapatero is his policy on the Spanish regions. It was risky to devolve more powers to the Catalans, and even more so to talk to the Basque separatists, ETA. Mr Aznar's refusal to discuss more regional autonomy had stoked separatist sentiment. Yet the new statute for Catalonia, fiercely resisted by the PP and now subject to a court challenge, has proved unpopular in the rest of Spain. It has not even helped the Socialists much in Catalonia—indeed, the regional parties will do well, putting them in a strong bargaining position with a new government (see article).

As for ETA, its decision to end a two-year ceasefire and resume its campaign of violence was a blow to Mr Zapatero, making him seem credulous and naive. It is true that the PP government also talked to ETA, and that thanks to good police work the terrorists are even weaker than they were. But Mr Zapatero's new regionalism has certainly not helped him.

The third issue that may have hurt him is immigration. Spain has become Europe's migration magnet: in the past decade it has taken in as many as 5m foreigners, second only to the United States. Most come from north Africa and Latin America. The population, once expected to fall, is growing fast: official forecasts show it rising from 45m now to almost 50m by 2015. Mr Rajoy has made much of uncontrolled immigration, with the avowed goal of luring native working-class voters away from the Socialists.

Mr Zapatero stoutly defends immigration, especially his decision to legalise many of those who entered Spain illegally. Yet the country is now changing so fast as to test social tolerance. In 2000 the foreign-born share of the population was just 4%. Seven years on, it is 12%, as high as anywhere in Europe. With the economy in trouble and unemployment rising, a backlash against immigration seems likely.

Immigration is intimately linked to Spain's economic performance. Many foreigners arrived to work in construction. They are also responsible for much demand for new housing outside the *costas*. And immigrants have been crucial in bringing about wage moderation—real wages have recently been falling—and in holding down inflation. One economist, tongue only just in cheek, calls immigration a de facto labour-market reform.

Immigration has also made two failings in the Spanish economy potentially worse. First, it has prolonged the property boom to the point where its bursting seems bound to cause more pain. The Bank of Spain insists that Spanish banks are healthier than their rivals, not least because it wisely kept them out of the fancy structured-finance products that have caused such trouble elsewhere. But it concedes that lending linked to property has risen from 40% of all loans in 2005 to 60% now. It puts total exposure to property at a whopping €300 billion ($450 billion).

The government insists it is well placed to respond to a slowing economy. The budget surplus is running at 2% of GDP; ten years ago the deficit was close to 3.4%. Mr Zapatero and Mr Rajoy are vying to make ever more extravagant promises of tax cuts and spending plans. But the Bank of Spain urges caution: inflation is high and the current-account deficit is a shocking 9% of GDP, so fiscal expansion may be riskier than it appears at first sight.

This should focus the attention on the second failing: Spain's lack of structural reforms to improve competitiveness, free up the labour market, liberalise the economy and start the slog of raising productivity by such measures as improving education. The good times of the past decade, plus European Union money that is now running out, allowed governments of both parties to put off taking unpalatable medicine. Spain faces its severest test since joining the euro a decade ago. The only way to pass is to make deeper reforms than either party has so far suggested. In some ways, this may turn out to be an election that it is better to lose than to win.

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Regional politics in Spain

Power in their hands

Mar 6th 2008 | BILBAO
From The Economist print edition

Basque and Catalan parties may be the real election winners

AT THE headquarters of Spain's biggest regional parties in Bilbao and Barcelona, supporters will reach for their calculators before their Cava or Patxaran wine on election night. Polls predict that neither of Spain's two main parties will win an absolute majority, and that parties in the Basque country and Catalonia will hold the balance of power.

The three main regional forces—Catalonia's Convergence and Union (CiU), its separatist rivals, the Catalan Republican Left (ERC), and the Basque Nationalist Party (PNV)—expect to win between six and ten deputies apiece in Madrid's 350-seat parliament. Spain is one of Europe's most decentralised countries. And governments of all hues, even the People's Party (PP), which dislikes handing any more power to the 17 autonomous regions—have in the past had to rely on backing from regional groups.

Their support has often been easy to buy through promises of high-speed trains, research money, and offers of further autonomy. The Socialists' parliamentary leader, Diego López Garrido, says negotiations for the next government should not be difficult. The outgoing government was 12 seats short of an absolute majority, but managed to play off aspirant partners against each other. "They will come to us," he predicts.

It may prove harder this time. The Basques' PNV government wants to hold a controversial referendum calling for Basques themselves, rather than all Spaniards, to decide their future status. "We would need a strong commitment," insists a PNV deputy, Pedro Azpiazu. Yet such a move would be resented by many other Spaniards as a sop to ETA, the violent Basque separatist group. Basque separatists are calling for an election boycott as their parties were stopped from running because of alleged links with ETA.

Catalonia is also tricky. It won a new autonomy charter from Mr Zapatero, but parts of it may be struck down by the constitutional court. The CiU stands to win more deputies in Madrid than the ERC. But its price for supporting the government may be the eviction of the ERC from the regional Catalan government, where it is in coalition with the Socialists. The horse-trading may take weeks.

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Russia's new president

A Putin-shaped throne

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From The Economist print edition

Uncertainty surrounds Dmitry Medvedev's rise to power

Get article background

OVER the past few weeks Russians have been treated to an election show with all the trimmings: televised political discussion, opinion polls and live coverage of the votes coming in. The only missing bit was the election itself.

AFP

Look, no puppet strings

The real selection of Dmitry Medvedev took place last December, when Vladimir Putin announced him as his successor, while promising also to become Russia's next prime minister. The balloting on March 2nd, when 70% of voters endorsed Mr Putin's choice, was mere ritual. It was not so much the election that was rigged (though figures were massaged), but the whole political process leading up to it. Had Mr Putin picked anyone else, the result would have been the same, for this was his election.

On the night, Mr Putin and his protégé walked on to a concert stage in Red Square. Mr Medvedev, wearing jeans and a leather jacket, tried his best to sound cool and victorious. Then Mr Putin took the microphone and the audience erupted, chanting his name. So who will really be in charge of Russia?

Many Western politicians hope that Mr Medvedev will, with time, become friendlier to them, and even to his own people. But apart from some liberal rhetoric about freedom and the rule of law, Mr Medvedev has done little to justify such expectations. Indeed, he has gone out of his way to stress continuity with Mr Putin's policies.

Two post-election events seem to confirm his pledge. First, Gazprom, Russia's gas giant, which Mr Medvedev has chaired since 2000, briefly reduced its gas supply to Ukraine this week, conjuring up memories of a gas war two years ago. Gazprom insists that the dispute was purely commercial, but its timing was surely not.

The second was the violent suppression of a protest in Moscow and the detention of a liberal politician in St Petersburg. The arrest gave new meaning to law enforcement. Maksim Reznik, an activist of the liberal Yabloko party, came out of his office, saw a street squabble between a colleague and a group of thugs, and tried to pull them apart. When the police arrived, they arrested Mr Reznik and let the provocateurs go. Mr Reznik is now in pre-trial detention for two months, charged with assaulting representatives of the state.

Neither Mr Reznik nor a small and unarmed group of protesters in Moscow pose any threat to the Kremlin. The only possible explanation for its overreaction is that it was a deliberate show of force. The most frequently cited reason for optimism about Mr Medvedev is that he was not, like Mr Putin, a

member of the KGB. But the danger is that Mr Medvedev might try to compensate for his perceived liberalism by being even more ruthless than his predecessor. It is easier to look tough by beating up a few opposition leaders than taking on the security men.

Even if Mr Medvedev has liberal instincts, he has no independent power base and is certainly more of a team player than a maverick. This means he will only be as liberal as Mr Putin and the system will allow him to be, at least for now.

Another question, less discussed, is not how much independent power Mr Putin will grant his successor, but how much of it Mr Putin actually wields. Neither dictatorship nor democracy, Mr Putin's system is dysfunctional. Yulia Latynina, a Russian commentator, argues that his wishes have often not been carried out, particularly when they have run against the interests of other Kremlin clans.

Mr Putin is certainly responsible for political developments in Russia, but he may be a hostage of the system he created: "If a drunken driver crashes a car, he is responsible for it," says Ms Latynina, "but it does not mean he is in control of it."

Mr Putin chose his successor not because he was deemed to be a liberal, but because he was a compromise figure, second best to Mr Putin staying in power. As one Russian official put, it is one thing to become president in Russia. Leaving the post alive is quite another.

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Armenia

Troubling news from the Caucasus

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Bloodshed in Armenia worries both Russia and the West

THE day after Dmitry Medvedev's presidential victory, Moscow's leading papers turned their attention away from the long-predicted result to the unexpected bloodshed in Armenia. At least eight people were killed in clashes between security forces and opposition supporters protesting against alleged fraud in the country's presidential elections. "An election won with some blood", ran the headline in *Kommersant,* a leading business daily.

Small, complicated and with names that are hard to spell, Armenia has long been out of the mainstream of world news. Yet what happens in this country has implications not only for the whole of the Caucasus, a region vital for Europe's energy security, but also for Russia. The story of rigged elections, corrupt officials and dead protesters is particularly unnerving for Russia, a country that prides itself on its stability.

On February 19th Armenia held presidential elections. The incumbent prime minister, Serzh Sarkisian, assisted by a biased media and occasional stuffing of the ballot boxes, won 53% of the vote. If the election had been conducted fairly, there is a good chance he would have faced a second round and a possible defeat. But Mr Sarkisian had the backing of Robert Kocharian, the current president, which swung the result. (Mr Kocharian, it is said, fancies the job of prime minister—not unlike his Russian counterpart.)

International observers did not cover themselves in glory. The Organisation for Security and Co-operation in Europe pointed out many shortcomings, yet said in an initial statement that the ballot was "mostly in line with the country's international commitments".

The opposition, led by Levon Ter-Petrosian, an academic and Armenia's first president, demanded a re-run of the election. His supporters took to the streets. Mr Ter-Petrosian is no democratic angel. In 1996 he is widely believed to have rigged the presidential election in his favour. Still, those who voted for him this time did so largely in protest against the local mafia, corruption and unemployment now associated with Mr Kocharian.

For 11 days the government put up with the peaceful protest. But on March 1st, the police moved in on the pretext that protesters were carrying firearms, which some observers say were planted. Mr Ter-Petrosian was placed under de facto house arrest and the crowd was dispersed. Predictably it regrouped and gathered in front of the French embassy in Yerevan. Mr Kocharian sent in the army, and the area

was soon lit up with tracer fire.

Eight people were killed, cars were torched and shops were looted. Many protesters were armed with stones and metal poles. But the responsibility ultimately lies with the government which allowed the situation to deteriorate into chaos. The state of emergency now imposed by Mr Kocharian for 20 days, including a media blackout and the arrest of opposition figures, may temporarily suppress the protests, but it is unlikely to resolve the underlying problems.

These include corruption, low living standards and an economic blockade by Azerbaijan and Turkey because of Nagorno-Karabakh, the Armenian-populated enclave inside Azerbaijan that was conquered by Armenia in 1994. This conflict has long been frozen. But three days after the violence in Yerevan, Armenian and Azerbaijani forces were involved in their worst firefight in a decade. Both Armenia and Azerbaijan accuse each other of starting the skirmish, which caused a disputed number of deaths on both sides.

Claiming that Kosovo's declaration of independence last month has emboldened Armenian separatists, Azerbaijan's president, Ilham Aliev, has given warning that he is buying weapons to retake Nagorno-Karabakh by force, if necessary. A renewed war could destabilise the region and jeopardise a strategic oil pipeline to Turkey that runs only 15 kilometres (ten miles) from the ceasefire line.

Nagorno-Karabakh remains an open sore. Mr Ter-Petrosian's downfall in 1998 was mainly caused by his hints of a more flexible approach to a peace settlement with Azerbaijan. Both Mr Kocharian and Mr Sarkisian are from Nagorno-Karabakh and fought in the war, but they have done little to move towards peace. In a recent commentary in the *Washington Post*, Mr Ter-Petrosian dismissed the notion that only hardliners from Nagorno-Karabakh can solve the conflict. Indeed, he argues that Mr Sarkisian, whose presidency is now marred by bloodshed and incompetence, will be even less able to govern.

Russia and the West have an interest in Armenia's stability, and they need to work to maintain it. This could be Mr Medvedev's first foreign test as president.

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Northern France

Not so grim up north

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The French discover the charms of rain, chips and beer

THE north of France is the bit you pass through in order to get somewhere else. At least, that is the way that many French people (and foreigners) have looked at this mining, steel and textile region: a cross between America's rustbelt and the British Midlands. Yet the French are now in the grip of northern fever, thanks to a comedy, "Bienvenue Chez les Ch'tis", that is breaking French box-office records.

Jean-Claude Lother

Embracing *les Ch'tis*

It tells the story of a post-office manager who tries to scheme his way into a job on the Med but is instead dispatched to the dreaded, rain-soaked, chip-eating, beer-drinking north. Despite his prejudices about *les Ch'tis*, as the locals call themselves, he ends up charmed—and with him, it seems, is the rest of France. In its first five days, the low-budget film sold more tickets in Paris than the previous record-holder, "Star Wars III".

Dany Boon, the movie's writer-director and comic star, himself a *Ch'ti*, has become a national celebrity."In French cinema," he says, "all the nice comedies are shot in the south, and all the grim dramas in the north."

In the popular imagination, the north is captured by Émile Zola's novel, "Germinal", set in the dismal coal mines around Valenciennes, or such contemporary films as Bertrand Tavernier's "Ça Commence Aujourd'hui", shot in a bleak, red-brick town also near Valenciennes. *Miserabilisme* and the north, it seems, go hand in hand.

This image is partly rooted in fact. Industrial decline has knocked the north hard. Joblessness there runs at 11.5%, compared with 8% countrywide. Average GDP per head is half that in Paris, and four-fifths the national average.

Yet, despite such troubles, the north has reinvented itself. Ever since the Eurostar linked Lille by high-speed rail to London and Brussels in 1994, services, and tourism in particular, have boomed. The Flemish centre of old Lille, with its cobbled streets and gilt-edged stonework, has been scrubbed up; new cafés and boutiques flourish.

In 2006 some 1.1m foreigners visited the north, more than three times as many as went to the Loire valley. For the French, it seems to have taken a movie to divert their sun-oriented gaze.

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American visas

Stand in line

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A docile ally wins visa-free travel to America. Others fume

RISKING death alongside American soldiers in Iraq and Afghanistan makes you a valued ally—unless, that is, you actually want to visit the United States. Then you are a security risk and have to pay a hefty fee for a visa that you may not be granted. That is the bitter experience of loyal Atlanticists in eastern Europe, who have been waiting for America's visa regime to lift ever since the iron curtain fell.

Almost all "old" Europeans (ie, the richer part of the continent) benefit from America's visa-waiver programme; Greece is the only exception. That includes countries that have criticised American foreign policy and those with large Muslim minorities (a security risk in American eyes). Many ex-communist countries have demonstrated their pro-American loyalties on the battlefield. Poland and the Czech Republic, moreover, are the planned sites for two new American missile-defence installations, prompting wrath from Russia. Yet so far only Slovenia (exceptionally small, rich and well-run) has gained visa-free travel to America.

Now the Czech government seems to have done a deal that will make life easier for its America-bound citizens. In doing so it has infuriated the rest of Europe, especially Poland. Visiting Washington, DC, last week the prime minister, Mirek Topolanek, signed a memorandum of understanding that will allow Czechs to apply for a visa waiver online, skipping both the embassy queues and the $131 fee. It has also agreed to plentiful data-sharing with American officialdom, and that American armed marshals may fly on Czech flights. Similar deals with other countries such as Estonia are expected.

This has infuriated the European Commission, which badly wants to be the sole negotiator with the Americans. Special deals for selected ex-communist countries will undermine that. Oddly, America repeatedly urges Europe to adopt a stronger and more united stance in the face of Russian attempts to do bilateral deals on energy. But on the question of visas, America appears happy to adopt a similar divide-and-rule tactic itself.

The Poles are privately livid. The new government in Warsaw has been trying hard to bargain for better terms with America on both missile defences and visas. "The bouncing Czechs have stabbed us in the back," says an official, bitterly mixing his metaphors.

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Charlemagne

Don't play politics with the euro

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The lessons of German history haunt the single currency

Illustration by Peter Schrank

Get article background

IN THE heart of the Money Museum, a shrine to economic rigour in the grounds of the Bundesbank in Frankfurt, a large machine allows visitors to see what would happen if French populists took control of Europe's single currency. In truth, the simulator is not labelled in quite that way—museum-goers are merely invited to grab a lever, and choose how much money to supply to a slowing economy.

But for anyone seduced by French complaints over an overvalued euro, and the need for the European Central Bank (ECB) to concentrate more on pursuing growth, the lesson is plain. If you ignore the post-1945 German focus on fighting inflation and pour in easy money, then disaster follows.

The machine shows prices running out of control, warning lights come on and the game ends. "Sorry, but you've failed," reads an illuminated rebuke. "Go back and review the basics of money again." The real-life costs are spelled out, a few metres away, by sombre displays and newsreels describing the miseries of currency instability. They show Germany's hyperinflation in 1923, when it became cheaper to burn banknotes than to buy fuel. Then came deflation and mass unemployment in the early 1930s, triggering despair that—the museum commentary suggests—helped the Nazis to power.

Other sections explain how post-war Germany was saved by the strict policies of the Bundesbank. A display marked "conflicts" describes how politicians from Konrad Adenauer to Helmut Schmidt all failed to browbeat the bank into bending the rules on inflation. Each time, visitors are told, the bank was ultimately proved right. Students looking round the museum agree that experts, rather than politicians, should be in charge of currencies. Thies Bach (looking quite cheerful, considering he won his visit as third prize in a school contest) said: "It is very important to have a stable currency. If the economy hadn't been so bad, Hitler might not have had a chance."

A trip to Frankfurt helps to make sense of the deep divisions that the strong euro has exposed among the 15 European Union members of the single currency. In countries like France, placing economic decision-making in the hands of politicians, rather than unelected bureaucrats, sounds like a defence of democracy. But even among Germans too young to remember the D-mark, any hint of political meddling raises fears of unstable prices that have, in the past, destroyed democracy.

French complaints about the strength of the single currency have been rumbling for some time, as the euro has climbed in value against the dollar and Asian currencies. They became louder than ever when the currency recently broke through what a French minister called the "psychological" barrier of $1.50 to the euro.

But what precisely do the French want? It is unclear, given that their comments are mostly couched in code. French business leaders have asked the EU to "wake up". In an interview with *Le Monde*, Dominique Strauss-Kahn, a former finance minister who runs the International Monetary Fund, said the euro was overvalued and blamed the "excessive power" of the ECB. On the one hand, Mr Strauss-Kahn said, the ECB had done well in controlling inflation (its mandate, to focus on medium-term price stability, was inherited from the Bundesbank). On the other, he said, the ECB lacked a "political" counterbalance in the form of a "finance minister for Europe" to promote growth.

President Nicolas Sarkozy has been attacking the strong euro for months, saying that the currency should be put "at the service" of growth and jobs. Yet he also insists that he does not question the independence of the ECB. More recently, he has preferred to hint at dark dealing by America and other rivals with weaker currencies, saying that European industry must not be "penalised" out of existence by "monetary dumping".

The euro's strength was debated at this week's meeting of the "Eurogroup", the club that brings together euro-area finance ministers with the ECB head, Jean-Claude Trichet, and Joaquín Almunia from the European Commission. France was clearly "hoping for a depreciation of the euro", comments one minister. But he adds that "what France says outside is a lot stronger than what they say inside." Still, there are deep differences of opinion. Germany pulled off an export boom last year, despite the strong euro. Other countries whose trade is mostly within the euro area point to the inflation-controlling benefits of a strong currency, when it comes to buying imports and above all oil (which is priced in dollars).

The economics of charcuterie

It has not escaped EU ministers that France (like so many others) is in the grip of a big row about rising prices. Domestic political debate in France is dominated by talk of households' falling "purchasing power", down to a startling level of detail (both Mr Sarkozy and his prime minister, François Fillon, have denounced prices of supermarket sliced ham).

Within the Eurogroup, there is irritation at the incoherence of calling for a depreciation of the euro, which risks fuelling inflation, but at the same time worrying about purchasing power. Most charitably, it is suggested that French politicians are trying to woo special interests by denouncing the strong euro. Less charitably, some say there is no real strategy behind the criticism—merely a calculation that talking of political action and bashing central bankers sounds good to French voters.

Such attacks are meaningless in practical terms: the treaties guaranteeing the ECB's independence can be changed only with the unanimous agreement of all 27 EU members (which many, starting with Germany, will never give). In short, if French politicians want to play at being European central bankers, their best hope may be a trip to Frankfurt to play on the Money Museum's machine. Even then, they may not like its stern lessons.

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Britain and Europe

Rebels with a cause

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Reuters

The House of Commons puts paid to giving Britons a vote on the European Union's non-constitution

Get article background

EACH spring for the past half-century the BBC has broadcast a show in which the public selects Britain's entry for the annual Eurovision song contest, a pop-music competition. For decades it was called "A Song for Europe", and then by other names. This year's show, broadcast on March 1st, had a new title: "Your Decision".

The name is an embarrassment to any member of the British government who is blessed with a sense of irony. For it is dealing now—with difficulty—with another pan-European project that was also started in the 1950s: the European Union. And the right to decide is the very point at issue.

As the EU absorbed ten countries (most of them in central and eastern Europe) in 2004, new arrangements to make decision-taking easier were put forward. At the general election in 2005 Britain's three main political parties promised a referendum on a proposed new EU constitution. In the event, the constitution was voted down by the French and Dutch before the British had had their say.

The treaty designed to replace it, signed in Lisbon in December, is substantially the same as the original. That represents an important transfer of sovereignty from Westminster to Brussels, say the Conservatives. They want the promised referendum on it. Labour and the Liberal Democrats, knowing that Britons would probably vote against the treaty if given the chance, claim that it is a much less ambitious tidying-up exercise. They point to important opt-outs won by Britain—especially in law enforcement—and insist that it is Parliament that should debate the treaty.

And so it has, in excruciating instalments in the House of Commons since January. The Tories proposed an amendment calling for a referendum, as did a Labour backbencher. On March 5th they were defeated by 63 and 64 votes respectively. The House of Lords is yet to have its say, and much will depend on its 200 nonaligned crossbenchers. Yet opinion polls are conclusive: voters want a referendum.

The public's disposition towards the EU (supportive of membership but suspicious of integration) has remained consistent since Britain joined in 1973. The two main parties, meanwhile, have undergone conversions. Labour at its most left-wing backed withdrawal from the "capitalist club" at the 1983 election and became pro-European only later that decade. The Tories, for their part, took Britain into

Europe but became dividedly Eurosceptic under Margaret Thatcher. She, like John Major, her successor as prime minister, was brought down in part over Europe, a measure of its political import in Britain.

Labour is more united over EU membership than the Tories, but the referendum question has been a vexed one for the government since June, when Tony Blair, in virtually his final act as prime minister, negotiated the treaty. Members with marginal seats fear an electoral payback if voters judge that they have broken an election commitment: 29 Labour MPs voted for the Tory amendment.

The biggest EU troubles, however, were reserved for the Lib Dems, who are the keenest on Europe. Their new leader, Nick Clegg, inherited from his predecessor a curious policy of opposing a referendum on the treaty while demanding one on whether Britain should remain in the EU. This byzantine ploy in theory allowed the Lib Dems to deflect the charge of sidelining voters while minimising risk, for a referendum on membership would, unlike a narrower vote on the treaty, probably be won.

The Lib Dems' attempts to schedule a debate on the "in or out" question were rebuffed by the House of Commons authorities: howls of anger about this from Ed Davey, their foreign-affairs spokesman, prompted his ejection from the house on February 26th. More worryingly for Mr Clegg, who has been in the job only since December, 13 of his 63 MPs (including four front-benchers, three of whom have resigned) defied his instruction to abstain from the vote on the Tory amendment. This surely was an avoidable stumble for the new leader that could prove to have serious consequences.

Reneging on what many see as a promise to have a referendum on substantial institutional change in Brussels comes at a bad time for politicians generally. Scandals over party funding and MPs' perks have damaged public trust in Westminster. Denying people a chance to vote also seems to contradict the oft-professed desire to push power downwards. All three parties pay lip service at least to strengthening local government and "empowering" the users of public services.

Yet for all the political sound and fury, the government has some cause for comfort. For one thing, the public is relatively indifferent. Hardcore Eurosceptics are vocal and tenacious—recent stunts have included unveiling a banner on a crane outside Parliament, and funding unofficial referendums via postal votes. But though most people say they want the chance to vote on the treaty, it is not of great importance to them. They care more about issues such as crime, immigration and health.

Another is that, as unseemly as denying the chance to vote may be, the fallout if a referendum resulted in the treaty's rejection could be worse. Galled by Britain's opt-outs, the rest of the EU could force a showdown over its very membership. The Tories, for all their bravado, appear to have no clear response to this possible outcome.

Conservatives claimed a moral victory after their amendment was defeated, and the Lib Dems came out of it badly. But the government has yet to be severely damaged by the treaty saga. Voters may want the same say on Europe's high politics as they enjoy on its low-brow pop, but it is too early to tell whether they will punish those who have denied it to them.

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Northern Ireland

The big man leaves the stage

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Ian Paisley resigns

IT IS a rare person who makes news at the age of almost 82 by giving up two of his four jobs. The announcement on March 4th that the Rev Ian Paisley intends to stand down in May as Northern Ireland's first minister and leader of the Democratic Unionists, the party he founded, did just that. He will remain an MP, and a member of the devolved assembly, but his time at the heart of Northern Ireland's turbulent politics has in effect ended.

For more than half a century Mr Paisley, latterly a prince of peace, was an adamant obstructionist in the search to reconcile Northern Ireland's warring Catholic nationalists and Protestant unionists. He came to prominence as a fundamentalist preacher against Roman Catholicism in the 1950s. Many people on both sides of the divide believe that his diatribes then lit the touchpaper for decades of communal violence. Moderate unionists withheld their support until he was an old man, embarrassed by his open bigotry and a bit fearful of the emotions he unleashed. He was 77 when the DUP he led finally became the province's biggest unionist party.

Tony Blair and Bertie Ahern played to his vanity in seeking to persuade Mr Paisley that only a man of his stature could bring peace to Northern Ireland. Yet the British prime minister and the Irish taoiseach spoke the truth. He had great magnetism, and the fearful soul of middle-unionist Ulster was comforted by having him around, like an Alsatian dog barking in the back garden. It was his voice raised in favour of a deal with the nationalists that mattered, and when he agreed last spring to share power with Sinn Fein, he took most of his community with him. For almost a year he has headed Belfast's devolved administration with Martin McGuinness, a former IRA leader.

The two men have a rapport, and it is not only for the camera. Yet their public bonhomie—useful at first as a sign that a new age had dawned—was one reason for Mr Paisley's early political demise. The sight of the erstwhile enemies joking together offends the diehards on both sides who loathe the DUP-Sinn Fein agreement.

But it is age, mainly, that is pushing Mr Paisley from power. His commanding physical presence is reduced these days, his rhetoric more rambling than rousing. The clincher was the resignation in February of his son, Ian junior, from his ministerial office after being pilloried for over-enthusiastic lobbying on behalf of a local businessman and supporter. Mr Paisley had served in his father's office, where one task was to carry papers and whisper corrections or names to him. Though Mr Paisley denies that this prompted him to quit, he may well have quailed at the prospect of carrying on without that discreet daily support. And he thinks (no doubt correctly) that those who attacked the son had the father in their sights.

Mr Paisley's likely successor is his deputy, Peter Robinson, now finance minister. Mr Robinson is curt but clever and efficient. He will seek to avoid the conspicuous bipartisan chuckles that laid his predecessor low, and may postpone devolved policing, the next test of detente. But these are details: power-sharing looks here to stay, even if the man who did more than most to bring it about no longer will be.

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Coming of age

You'll be a man, my son

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But it's not clear precisely when

AT WHAT age does adulthood begin? In Britain, as in most countries, it comes in dribs and drabs: school becomes optional at the age of 16; driving lessons can begin at 17, and at 18 people are freed to drink, gamble and vote (in roughly that order of priority).

The long march to maturity is being pushed back. In October cigarettes were plucked from the hands of 16-year-olds, who must now wait another two years for their first legal puff. The following month ministers unveiled plans to keep teenagers in school or part-time training until they are 18. And on March 4th, as part of a package of curbs on binge-drinking, the government launched a crusade against under-age drunkenness. Shops and bars caught serving under-18s will get one warning before losing their licence, rather than two, and minors caught furtively boozing will be sent with their parents to meet a social worker. Some suspect that next week's budget will ramp up tax on child-friendly tipples such as cider.

It is not surprising that the current government, which has made child poverty a focus for many years, should be keen to protect youngsters from the evils of tobacco, alcohol and employment. There is also widespread worry among voters about the national loss of (possibly mythical) childhood innocence. Serious violence committed by, and against, teenagers appears to be rising; last year a UN report labelled Britain the worst place in the rich world to be a child, based on exposure to drugs, violence and other nastiness. Growing up more slowly might be the answer.

But there are other areas where Britain is determined that its children grow up quickly. The age of criminal responsibility in England and Wales is ten, trailing most of Europe, where usually only those aged 14 or 16 can be prosecuted. Britain's jails have a higher proportion of prisoners under 21 than any in Europe apart from Ireland's. And their numbers are rising, thanks to harsher treatment of petty anti-social behaviour and teenage enterprises such as phone theft.

That is depressing. But there is a more optimistic approach to treating children like adults: giving them the vote. Julie Morgan, a Labour MP who has put forward a private bill enfranchising 16-year-olds, argues that it is a good way to engage disenchanted teenagers who, in any case, pay reasonable sums of tax to the exchequer. The low turnout among 18-year-olds is actually an argument in favour of extending the franchise, she says: children will pick up the voting habit while they are still at school, having their compulsory citizenship lessons. The government has begun a review of the subject, which insiders say will go nowhere. But the enthusiasm of the Scottish and Welsh parliaments (who are in favour, but unable to act without London's consent) will add some pressure.

With children being pulled towards both early adulthood and prolonged childhood, there might be room for more variation. On drinking, for example, some European countries allow younger teenagers beer and wine, keeping them off the strong stuff until they are older. The Tories recently floated the idea of postponing the right to drive for teenagers who misbehave. Or perhaps the opposite is true: teenagers might better understand the rights and responsibilities of adulthood if they were granted them all on one solemn date. A secular *bar mitzvah* such as this would at least clear up some inconsistencies in the current system. What sort of country allows you to have a child before you can have a tattoo?

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Carbon capture and storage

Filling it all back up again

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Carbon-capture technology offers a new use for old assets

ONCE the world's sixth-biggest producer of oil and gas, Britain's bit of the North Sea is in terminal decline. Production peaked in 1999 at 4.5m barrels a day and has since fallen to 3m. A target to maintain that level until 2010 looks certain to be missed despite the sky-high oil price.

That worries ministers. Expensive oil pads tax receipts: oil and gas firms are now the biggest corporate contributors to the treasury; along with banks they paid three-quarters of the £13 billion ($26 billion) raised in corporation tax in 2007. A newly-assertive Russia has pushed energy security up the agenda. And the industry supports around 400,000 jobs.

But the problem may disguise an opportunity, for the fields are emptying just as empty fields may start to become useful assets. That is because of carbon capture and storage (CCS), a technology that removes planet-heating carbon dioxide from power-station chimneys and sequesters it safely beneath the ground.

The government is keen. Sir Nicholas Stern, asked by Gordon Brown to examine the economics of climate change, backs the technology. Last year's energy bill removed legal obstacles; in November ministers announced a competition to build a coal-fired demonstration plant by 2014.

Carbon capture and storage offers several advantages. Many existing fossil-fuel plants will shut down in the next decade, and despite the drive for renewables and nuclear power, much of the replacement capacity will be fossil-fired. Fitting CCS would reduce emissions from these new plants to almost zero. "Post-combustion" CCS, where carbon is removed from the flue gases, could be retrofitted to many existing plants. And by cleaning up dirty fuels such as coal, CCS could improve security of supply. In contrast to natural gas, global coal reserves are widely dispersed and can be bought from politically stable countries such as Australia and America.

Officially, the government's pilot plant is a demonstration for others (particularly China, which is building coal plants at breakneck speed) designed to show that the embryonic technology works. Privately, many hope for commercial benefits too. Sir Nicholas predicted that fossil fuels would still account for half of world energy supply by 2050; if climate change continues to be taken seriously, the market for cleaning them up could be huge.

Supporters argue that a combination of geology and know-how gives Britain an advantage. "The core technology for this will likely come from Germany or Japan," admits Jeff Chapman, head of the Carbon Capture & Storage Association, a fledgling trade association. "But equipment supply isn't everything: project design, process management and finance are all things we do well." Mike Tholen, chief economist at Oil & Gas UK, the offshore industry's trade body, is more bullish, arguing that British firms can make the kit as well as manage it. Both agree that geology is a strong card: there is thought to be enough space to store billions of tonnes of carbon in empty oil and gas fields alone, and far more in subterranean salt caverns. The offshore oil industry around Aberdeen—already used to handling gases underground at high pressure—is a ready source of skills.

Cynics are less sure. The government's competition seems half-hearted: it is aimed at developments of around 300MWs, far smaller than most modern coal plants, and the timescale looks leisurely. Jon Gibbons, of Imperial College London, argues that a single competition will not be enough to create an industry. And despite aiming to reduce carbon emissions, CCS does not qualify for the government's main green energy handout.

Britain talks the talk on green technologies, but the walk is wavering. Grand ambitions were cherished for developing renewables, but countries with more generous subsidies are cornering the market in those

technologies. Still, there are grounds for hope. Several oil and gas engineering firms are pondering CCS. And building on existing skills has worked before. London has become the world's largest carbon market mainly thanks to its dominance of high finance.

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British banks

Spurious shoots

Mar 6th 2008
From The Economist print edition

British banks are making big profits, so why are their shares so cheap?

FROM the daffodils exploding in gushes of yellow to the budding pink on its trees, London is drenched with the signs of rebirth. A joyful mood of spring has also infused the boardrooms of the country's biggest banks, most of which have just reported blooming profits.

Despite writing down billions of pounds-worth of exotic credit instruments linked to bad mortgages, most British banks revealed earnings that were higher than or close to those they posted for 2006. This is in sharp contrast to America, for example, where one in four banks lost money in the fourth quarter and full-year results were the worst since 2002. Big British banks have also fared better than many of their rivals in other parts of Europe. UBS, for instance, posted a loss of $11.4 billion (£5.6 billion) for the fourth quarter.

Even when taking losses on assets that proved to be worth less than they had been thought to be, Britain's banks seem to have felt less pain than others. Barclays, for example, wrote down just £1.6 billion ($3.2 billion) of mainly derivatives and leveraged loans in 2007, compared with a hit of $18.4 billion at UBS and $4 billion at Credit Suisse, a fellow Swiss bank.

This seems odd. The world's credit markets are in crisis, and have been since August. British banks such as Barclays and Royal Bank of Scotland (RBS) have big capital-markets businesses and are at least waist-deep in the sorts of securities that have caused huge losses elsewhere. Can they have emerged from the credit crunch so lightly?

Critics are sceptical. By March 3rd, when the last of Britain's big banks reported, investors had concluded that results across the sector were disturbingly like lingerie: what they concealed was more interesting than what they revealed.

"Investors feel there's been a lot of huff, puff and bluff to calm the funding markets and gain breathing space," says Huw van Steenis of Morgan Stanley, an investment bank. "Most just don't believe it." Analysts at Citigroup, an American bank, complain about RBS's "complete lack of useful disclosure" as to how it had stretched its balance-sheet with the purchase last year of ABN AMRO, a Dutch bank.

There are three main reasons why British banks look vulnerable. The first is funding. Last year Northern Rock, which relied heavily on wholesale markets for money rather than on depositors, ran into trouble when credit dried up around the world; it proved unable to raise money from the banks that used to lend to it and from securitising its loans (bundling them up and floating bonds on the back of them). Investors are beginning to wonder just how widespread this problem is. Britain's banks as a whole lend far more than they collect in deposits. Their funding gap had widened from almost nothing in 2000 to some £550 billion by the end of 2006, more than that of banks in other big European countries (see chart). The gap is likely to be wider now—and the market for securitisations is effectively closed.

Capital is another worry. Banks on balance have seen their "core capital"—a cushion composed mainly of shareholders' money that regulators insist they hold against bad times—deflate. Carla Antunes da Silva of JP Morgan, an investment bank, reckons that by the end of 2009 Britain's biggest banks will have to find about £35 billion to meet the Basle II capital-adequacy rules.

Yet British banks are cavalier with their cash. Rivals around the world are hoarding capital to rebuild

balance-sheets hammered by credit losses and to get ready for harder times ahead. In America, for example, at least 18 large banks have cut their dividends or raised new share capital. Yet British banks, it seems, cannot hand out money fast enough: Barclays, RBS, Lloyds TSB and HBOS have raised their dividends.

All this is particularly worrying at a time when the British economy is finally slowing, its housing market subsiding and over-indebted consumers beginning to stagger under the weight of their mortgages and overdrafts. Banks' shares, unsurprisingly, have taken a pounding: Barclays, for example, is trading on just over six times historic earnings, down from about 11 times earnings a year ago. The index of FTSE banking shares has dropped by 30% since January 2007, compared with a 7% drop for the market as a whole. What matters more than investors' pain is that credit is tight and will remain so until the worst is known. It is time for plainer speaking.

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The coming budget

Debt reckoning

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From The Economist print edition

The chancellor faces a tricky decision about a crucial fiscal rule

AS ALISTAIR DARLING has been preparing his first budget, due on March 12th, troubles have crowded in on him. Despite the chancellor's unstinting efforts to escape the inevitable, he eventually had to nationalise Northern Rock. Businesses remain vexed about botched tax proposals. Above all, the public finances are running a big deficit, which will swell as the economy slows over the next year or so.

Budget-watchers will pay especially close attention to what Mr Darling has to say about debt. Until now the government has stipulated that public debt (net of liquid assets such as foreign-exchange reserves) should be held below 40% of GDP. The most recent figures show that it has been meeting the rule. However, the bail-out of Northern Rock will smash through the ceiling by adding liabilities of around £90 billion—6% of GDP—to existing debt of £512 billion—36% of GDP.

Mr Darling can quite reasonably argue that the mortgage lender's debt should be disregarded for the purposes of the fiscal rule. The easiest way to do this would be to publish the debt figures with and without Northern Rock, as the Institute for Fiscal Studies (IFS), a think-tank, has suggested. But this would in effect provide a running update on the bank's balance-sheet, something the government may prefer to avoid.

As he labours with this thorny issue, Mr Darling has been grappling with another. Over the past decade, the Treasury has increasingly turned to the private sector not just to build and operate but also to finance new public investment through the "private-finance initiative". Under a PFI deal, a private consortium raises money to fund the capital expense of, say, a new hospital. The government then pays a regular charge, typically for 25-30 years, that bundles together debt repayment with interest and operating expenses. The Treasury insists the policy is all about getting better value for money. It also pushes debt off the public books, however.

At the end of last year, 620 PFI deals involving a total capital commitment of £57 billion had been agreed. In some of the deals, the investment has been made; in others, especially three contracts to renovate the London Underground, years of capital spending lie ahead. Under current government accounting rules, only 13% of the deals and 42% of the total value—most of it arising from the Underground deals—were recorded as public liabilities.

This unsatisfactory position, which has allowed some deals to be off both public and private balance-sheets, was due to change soon. In his last budget a year ago Gordon Brown said that the public sector would adopt international accounting rules from April 2008. This would be likely to bring most of the PFI deals on to the government's balance-sheet, says Ken Wild, a member of the Financial Reporting Advisory Board, which offers independent guidance to the government.

It now looks as if Mr Darling will delay adopting the new rules for a year, but that merely postpones the agony. Quite how sharp the pain will be hinges on the response of the Office for National Statistics (ONS), which applies different concepts and procedures to measure the figure for public debt used for the fiscal rule.

The ONS took a first step towards including PFI liabilities in public debt in September 2006, when it came up with a surprisingly low figure of £5 billion for them. But the deals that gave rise to this estimate—those already recorded on the public books—were skewed by the big Tube contracts, much of the spending on which has still to be done. Excluding these, deals worth £7 billion resulted in some £3 billion of PFI debt being included in the fiscal numbers. If this pattern is repeated when the remaining deals, worth over £30 billion, are properly accounted for, around £15 billion—1% of GDP—might be added to the statisticians' figure for debt.

That may seem a relatively small amount but, as the public finances deteriorate, it could be enough to push debt through the 40% ceiling even if Northern Rock is excluded. The accounting changes will also remove the present incentive for public-sector bodies to go down the PFI route, says David Heald of Aberdeen University. That will further exacerbate the strains on the public finances.

The simplest way out would be to raise the ceiling, even though that would dent the government's already battered fiscal credibility. Whatever he does, Mr Darling is likely to face "presentational difficulties", says Carl Emmerson of the IFS.

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London politics

Mud wrestling

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From The Economist print edition

The mayoral race gets dirty

CITY governments the world over are notoriously corrupt. Alas, London's is developing a shifty reputation of its own. On March 4th Lee Jasper, a close ally of Ken Livingstone, London's mayor, resigned after the publication in the *Evening Standard* of snippets of intimate e-mails he had sent to Karen Chouhan ("gorgeous, wonderful, sexy Kazzi"). Mrs Chouhan is the company secretary of the 1990 Trust, a black lobbying group, and the director of the Black Londoners Forum, both of which have received money from the London Development Agency, a grant-giving body on which Mr Jasper sat.

Mr Jasper had been under pressure from the *Standard* and others for months. He had already been suspended from his job on February 15th, after separate allegations that other groups with which he has connections had received large amounts of city money, with little to show for it.

Though an internal review found no evidence of "corruption and collusion", the mayor asked the police to investigate further—perhaps in the hope that a lengthy investigation would ease the pressure. It didn't. Mr Jasper's deputy had been forced to quit in January after she accepted a free trip to Nigeria, then lied about it. By resigning when he did, Mr Jasper avoided being questioned by the London Assembly on March 5th.

In the circumstances, the mayor has been strikingly loyal. He lambasted the prying members of the assembly as "sanctimonious hypocrites", and, on the night Mr Jasper resigned, declared that he would "bet my own life that they will clear Lee Jasper, and I will reappoint him when they do". Both men have alleged that the criticism of Mr Jasper is motivated by racism. There is, Mr Livingstone told the *Guardian*, "a racist stereotype that no black person can be trusted with public money". Mr Jasper's resignation letter complains of the "racist nature of a relentless media campaign".

A more credible line of defence is that the row over Mr Jasper is part of an effort to discredit Mr Livingstone before London's mayoral election on May 1st. It was already a colourful race. Mr Livingstone, elected in the first such election, in 2000, is a former ultra-left-winger who now keeps company with an eclectic set of businessmen, radical Muslims and Hugo Chávez of Venezuela. His Tory rival, the improbably coiffed Boris Johnson, once cultivated an image as an endearingly gaffe-prone bicycling buffoon, which he is now trying to leaven with transport policy. The Liberal Democrat candidate, Brian Paddick, is a gay ex-policeman with a libertarian line on drugs. It is becoming a nasty race too.

The mayoral vote is a big test for the three main parties' newish national leaders. It once looked as if Mr Livingstone would cruise to re-election. But a poll by YouGov in February put him on 39%, behind Mr Johnson on 44%. Mr Livingstone may have calculated that clinging to Mr Jasper would be less damaging to his electoral prospects than axing him. If so, he seems to have been wrong.

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Bagehot

To the barricades, darling

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From The Economist print edition

Protests are increasingly popular in Britain. Fortunately, they usually fail

WINNIE, the giant brown sow, didn't make it into Downing Street. She was confined to the pavement in Whitehall, along with several hundred pig farmers (theme song: "Stand by your ham") who came to London on March 4th to complain about the plight of their industry. Down the road protesters had scaled a crane overlooking Parliament and unfurled banners demanding a referendum on the European reform treaty. Opponents of the construction of a third runway at Heathrow outdid them a week earlier, hanging their banners from the roof of the Palace of Westminster and throwing paper aeroplanes into the square below—itself host to an eternal peace protest, plus a lone environmentalist in an apache head-dress.

As well as ventilating angst over Europe and airports, the past fortnight has illustrated an underlying but important trend. Britons have historically been less keen than, say, the French, to air their grievances in public (all those strangers, and anyway it might rain). But the appetite for demonstrations is growing—and the profile of the protesters is changing. Once they were mostly industrial workers, peaceniks or extremists; these days they are as likely to be policemen or junior doctors. Groups who used to pursue their goals inside politics now do so outside it as well; once-marginal techniques are becoming orthodox.

The widening of the protest franchise is mostly seen as healthy. In fact, it suggests a dangerous view of politics.

King Mob

Interest in politics is generally thought to be waning in Britain; more accurately, it is being diverted from established parties and elections (whose membership and turnout have fallen) to groups who campaign on single issues, sometimes on the streets. The rise of this brand of politics is often said to reflect a failure by politicians, who are either hopelessly remote from voters' concerns or powerless to address them. But the big worry may be less politicians' failure than the naive expectations of the public.

The basic deal of parliamentary democracy is, or used to be, that on polling day voters make an overall choice among the packages on offer. They can turf out the government at the next election, but until then they have to live with compromise, frequent disappointment and occasional coercion.

That old model seems to be increasingly unsatisfactory to voters accustomed to bespoke treatment in other aspects of their lives. People are right and entitled, of course, to make their views known to their elected representatives; but swelling numbers seem to expect the same sort of service from Westminster as they get from Starbucks—to choose their policies in the same way as they choose the toppings on a cappuccino (a sprinkling of low taxation, please, with a referendum on the side). They demand a kind of personal satisfaction that government, with its conflicting priorities, can't deliver. In places such as California where government has tried to do so, by introducing more direct forms of democracy, the results have been chaotic.

There is a consolation, albeit one that carries its own risks, for those concerned by the rise of Starbucks politics and protest culture: despite their increased popularity, most protests are failures. The pig farmers staged a bigger one eight years ago and their industry has shrunk rapidly since; the main beneficiary of the campaign has been Winnie, who would have been eaten had she not become their mascot. The two biggest protests in the last decade—two of the biggest ever—were by the Countryside Alliance in 2002 and the one on the eve of the Iraq war in 2003. Nevertheless, foxhunting—which the rural folk wanted to conserve—was banned; British forces went into Iraq regardless.

The organisers of those two mega-marches argue that they succeeded in raising morale and embarrassing the government. But in a way, by advertising its respect for dissent, the demonstrations redounded to the government's credit. An understanding of the utility of protest may have influenced Gordon Brown's decision to lift the Blair-era restrictions on protests in Parliament Square. The same calculation may be at work in the government's new enthusiasm for politics by internet, which some fear may lead to a crass majoritarianism. So far, although there are lots of e-petitions on Number 10's website, they have mostly just allowed the disgruntled to let off steam.

Stunts—designed to attract the media rather than influence politicians—are no more effective than sheer numbers. “If we hadn't done it”, observes a spokesman for the rooftop anti-Heathrow group, “you wouldn't be talking to us”; but, as with some adverts, the stunts and the stuntmen often become better known than their causes, as was the case with “Swampy”, a grubby hero of 1990s road-building protests. Violence, on the other hand, has sometimes paid—especially when the demands of the mob chime with the sympathies of some politicians. The angry hauliers and farmers who, in 2000, blockaded refineries in protest at the cost of fuel were more successful than those ranks of decorous rustics. The poll-tax disturbances of 1990 helped to bring down Margaret Thatcher; the Hyde Park riots of 1866 increased the pressure for an extension of the voting franchise. But more sensible policing has made mob rule harder to achieve—and violence is anyway unlikely to appeal to the new cadres or protesters (“we're frightfully well-behaved, aren't we?” a farmer in Whitehall observed mournfully this week).

The best hope for protesters may be to enlist the support of a tabloid newspaper. There is not much evidence that the tabloids really articulate their readers' views, let alone anyone else's. But they exert a voodoo power over politicians: last month the *Daily Mail* ran a campaign urging tighter controls on the use of plastic bags and Mr Brown instantly signed up. Otherwise, protesters in the age of Starbucks politics are fated to be doubly frustrated: first by the politicians, then by their own failure to change things.

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Correction: British prime ministers

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In our article on private education ("Is it worth it?", March 1st) we said that state-educated prime ministers were a rarity. There has, in fact, been a run of them in recent years. Harold Wilson, Ted Heath, James Callaghan, Margaret Thatcher and John Major all went to state-financed academically selective schools, which are now a dying breed. The article has been amended online.

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Economist.com WORLD INTERNATIONAL

Global Muslim networks

How far they have travelled

Mar 6th 2008 | BISHKEK AND ISTANBUL
From The Economist print edition

Amberin Zaman

A Turkish-based movement, which sounds more reasonable than most of its rivals, is vying to be recognised as the world's leading Muslim network

Get article background

IT IS a long way from the Anatolian plains to a campus in the heart of London, where eminent scholars of religion deliver learned papers. And the highlands that used to form the Soviet border with China, an area where bright kids long for an education, seem far removed from a three-storey house in Pennsylvania, where a revered, reclusive teacher of Islam lives.

What links these places is one of the most powerful and best-connected of the networks that are competing to influence Muslims round the globe—especially in places far from Islam's heartland. The Pennsylvania-based sage, Fethullah Gulen, who stands at the centre of this network, has become one of the world's most important Muslim figures—not only in his native Turkey, but also in a quieter way in many other places: Central Asia, Indochina, Indonesia and Africa.

With his stated belief in science, inter-faith dialogue and multi-party democracy, Mr Gulen has also won praise from many non-Muslim quarters. He is an intensely emotional preacher, whose tearful sermons seem to strike a deep chord in his listeners; but the movement he heads is remarkably pragmatic and businesslike.

As a global force, the Gulenists are especially active in education. They claim to have founded more than 500 places of learning in 90 countries. A conference they staged in London last October was co-hosted by four British universities, plus the House of Lords. Its organisers produced a slick 750-page volume that included all the conference papers.

In its homeland, the Gulen movement is seen as a counterweight to ultra-nationalism. But in places far from home, the movement has rather a Turkish nationalist flavour. In the former Soviet south, it fights the "Turkish" corner in areas where the cultures of Russia, China and Iran co-exist uneasily. "If you meet a polite Central Asian lad who speaks good English and Turkish, you know he went to a Gulen school," says a Turkish observer. In Kyrgyzstan, for example, the movement runs a university and a dozen high schools, which excel in international contests. Even in Pakistan, pupils at Gulen schools learn Turkish songs, as well as benefiting from gleaming science labs.

Amazingly enough, the Gulen movement has built up a significant presence in northern Iraq, through schools, a hospital and (soon) a university. Although this arena of Turkish-Kurdish conflict is not the

easiest environment for a Turkish-based institution, the movement has deftly built up relationships with all the region's ethnic and religious groups.

The influence that the Gulen movement has quietly accumulated would be a surprise to some veteran observers of Islam. Asked to name the world's most active Islamic network, many a pundit would think first of the Muslim Brotherhood, whose reach has extended a long way from Egypt, where it began in the 1920s as a movement of resistance to the twin evils of secularism and colonialism. And it remains true that in every Western country (including the United States) where Muslims are politically active, the influence of the brotherhood—or at least of movements that grew out it—is palpable.

Among the brotherhood's ideological affiliates is the biggest Muslim group in France; a federation that aims to co-ordinate Muslim activities all over Europe; and a "fatwa council" that offers moral guidance to European Muslims. In Britain, the pro-brotherhood camp has split between a pietist wing and a more political one, known as the British Muslim Initiative, which is now busy organising protests against Israeli actions in Gaza. On the face of things, the Gulen movement seems more benign—from a Western point of view—than either the brotherhood or any of the other networks that compete for a similar role. Although the brotherhood tells people to take full advantage of secular democracy, it also insists that the ideal form of administration is an Islamic one. The Gulenists say their embrace of democracy is wholehearted, not tactical. If there is one group of people who doubt this, it is secular Turks; many view the Gulenists as "chameleons" who only show their true, conservative face in deepest Anatolia.

Still, if the Gulen message is well received in the West, that is partly because the message from other Muslim networks (leaving aside the ones that openly espouse terror) is often so dark. Take, for example, Hizb ut-Tahrir (Party of Liberation), which is active in at least 40 countries, including Britain and Australia. Its line is that Muslims should eschew electoral democracy altogether, on the ground that the only regime worth supporting is a global caliphate. Its maximalist stance, and the solidarity it proclaims with embattled Muslims across the world, can appeal to impressionable students. Yet another competitor is an Islamic revivalist movement, Tablighi Jamaat, rooted in south Asia but active in Africa and Europe, especially Britain. Compared with all these groups, the Gulen movement offers a message to young Muslims that sounds more positive: it tells them to embrace the Western world's opportunities, while still insisting on Islam's fundamentals.

This measured tone has won the Gulenists many admirers. But that does not mean that all Western governments automatically accept the movement's claims of moderation. "We know we are under surveillance from Western security services," laments a Gulenist insider. That is quite true, but so far those services have not detected any hidden ties with extremism.

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Fethullah Gulen

A farm boy on the world stage

Mar 6th 2008 | ERZURUM
From The Economist print edition

A "prophet" who finds honour, and some suspicion, in his own country

Get article background

PIOUS people in eastern Turkey, where Fethullah Gulen was born, are eager to praise him. Before hearing the preacher's words 12 years ago, "I led a life full of women and alcohol," admits Unal Sahin, a jeweller in Erzurum. Under Mr Gulen's guidance, he became devout and generous, helping a university in Georgia, and schools in India and Azerbaijan. "The more I gave, the more business grew," he says. His wife, meanwhile, donned a scarf.

Gulen-affiliated groups in Istanbul can seem quite liberal—with bare-headed and headscarved women mingling happily. But the social pressure for pious ladies to cover their heads, and generally behave in a conservative way, is overwhelming in places like Erzurum.

When Gulen-minded couples exchange visits, "the men sit in one room and we sit in another, we're more comfortable that way," explains one member of a scarf-wearing Gulenist sisterhood that does door-to-door preaching. "Our husbands don't mind that we aren't home during the day...they know it's because we are doing good for the cause," she insists.

A place where piety's rewards have yet to appear is Mr Gulen's home village of Korucuk, east of Erzurum. Apart from a new mosque, its buildings are made of mud, stone and thatch. But its 600 souls are proud of the hamlet's famous son. "God be praised, our village is all Muslim, and we don't have the evil internet," says Necdet Gulen, Fethullah's cousin.

Yet for all the admiration he attracts, many details of the preacher's life remain elusive. Before moving to the United States a decade ago, he had to play a cat-and-mouse game with the authorities. Shortly after his emigration, he was tried in his absence for "undermining secularism". This followed the leaking of a tape in which he appeared to urge his followers to take over the state by stealth. (He said the tape was doctored.) The trial dragged on for many years; he was cleared in 2006, but an appeal court then reopened the case.

A key asset of the Gulenist network in Turkey, which includes a university, a newspaper and a raft of small and large businesses, is a chain of dormitories for students. There is a familiar pattern in which youngsters turn to the movement for accommodation and then agree to follow a regime of fasting and prayer.

Many of Turkey's police are believed to be Gulen sympathisers—an interior minister once gave a figure of 70%—but the army remains highly suspicious. The movement is "apolitical" but has links with almost all Turkish political parties, save the main secular opposition. The Gulenists have lots in common with the ruling Justice and Development (AK) party, and they co-operate, but their interests are not identical. Rumour has it that Recep Tayyip Erdogan, the mildly Islamist prime minister, is holding back from replacing the Istanbul police chief for the simple reason that the Gulen movement wants the change—and he doesn't want to seem beholden.

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Economist.com WORLD INTERNATIONAL

The internet and government

Leaks and lawsuits

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Lawyers and governments battle over free speech on the internet

BEFORE they were leaked onto the internet, the activities in the Cayman Islands of Bank Julius Baer, and how far they may or may not have been approved by the tax authorities in the bank's native Switzerland, were strictly confidential. Even after a disgruntled senior executive posted some rum-sounding details to Wikileaks, a website specialising in information provided by whistle-blowers, they would have remained obscure. But the bank's attempts to have Wikileaks shut down have brought exactly the sort of scrutiny that it had shunned.

The bank now says it is considering its position. But the legal battles in California have highlighted both the legal limbo in cyberspace, and the way that the evolution of the web is widening the gap between those that want to share information (even illegally) and lawyers and governments that may want to control it.

Wikileaks appears to have been founded by an Australian living in Kenya. It boasts a distinguished advisory board, featuring both cryptographers and pro-democracy activists from such places as China. It offers "military-strength" encryption for those wanting to upload files anonymously. Material is reviewed by journalists and lawyers and then put on the web for public discussion. Big recent scoops have included an operating manual for guards at the American internment camp at Guantánamo, a document relating to the British government's expensive rescue of Northern Rock, a troubled bank, and material relating to official corruption in Kenya.

Working out where to sue it is tricky. Wikileaks has no offices or legal presence. Its servers are in Sweden and Belgium: countries, its website says, that offer strong legal protection. An initial American court ruling removed wikileaks.org from the internet domain registry, making it harder to find. But on February 29th the same judge reversed his ruling, to the delight of a bevy of free-speech advocates.

Websites that can be edited by anybody anywhere, part of what is often termed Web 2.0, are a powerful tool for political and social protest. In Colombia, protesters against FARC, a guerrilla group, used Facebook to organise a 4m-strong demonstration. Google Maps allowed a few bright Kenyan bloggers to display the incidence of post-election violence reported by text message. Russian bloggers have mobilised on LiveJournal to expose corruption at a pharmaceutical company.

But the golden age of cyberactivism may be coming to an end. China restricts access to anything with a Tibetan or pro-democracy flavour. Turkey blocked access to sites on Wordpress, a popular blogging platform, because it hosted material critical of Kemal Ataturk, the revered founder of the secular republic. Muslim countries, worried about the way in which the internet undermines conservative social mores on nudity and mingling, are twitchy too. Sites such as YouTube or even Craigslist, which offers an online dating service among a myriad of innocuous free-of-charge classified advertisements, are often banned in whole or in part.

Filtering out specific content from such sites is the subtlest but most expensive means of maintaining control. A simpler but more controversial approach is to block an entire domain. Inexpert official intervention can easily backfire. In Pakistan earlier this year the authorities (inadvertently, they claim) briefly made YouTube, a popular video-sharing site, inaccessible even for users abroad. A big fan of the site is none other than the country's president, Pervez Musharraf. According to Techcrunch, a technology blog, he was a conspicuously frequent visitor to a facility at Davos, a plutocratic Swiss shindig, where summit-goers could answer questions posed by YouTube users.

Ethan Zuckerman, a Harvard internet guru, says that authoritarian regimes find it harder to block such general sites as YouTube than to block those run by a specific group (Human Rights Watch, for example). The second lot appeals solely to dissidents, whereas the first are useful to many more internet users who

are interested in apolitical subjects.

But Michael Anti, a Chinese free-speech advocate, fears that state and commercial interests are colluding to produce Web 2.0 products that are apolitical but attractive. The convenience of China's Tudou and Baidu makes them strong competitors to foreign rivals like YouTube and Google. That makes an outright ban on the foreign sites less thorny.

To counter this, Chinese activists are returning to older, decentralised, internet services such as e-mail and chat rooms. These may be safer, but they have little reach outside the dissenting elite. Maybe netizens are too busy enjoying the new social and cultural freedoms offered by the internet to care about politics.

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Economist.com WORLD INTERNATIONAL

Anti-terrorist spending

Feel safer now?

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Most anti-terrorist spending is wasteful, claims a new study

AFTER September 11th 2001, most countries beefed up security at airports and other vulnerable places. Tough-looking immigration officials no doubt made passengers feel safer, offsetting the irritation of longer queues. Yet doing something because it makes people feel good is not adequate justification. Is money devoted to counter-terrorism well spent?

What claims to be the first serious study of its costs and benefits, by economists at the Universities of Texas and Alabama*, says no. It was commissioned by the Copenhagen Consensus, a think-tank that aims to scrutinise public spending on the world's woes and to ask "should we be starting from here?"

The authors of the study calculate that worldwide spending on homeland security has risen since 2001 by between $65 billion (if security is narrowly defined) and over $200 billion a year (if one includes the Iraq and Afghan wars). But in either case the benefits are far smaller.

Terrorism, the authors say, has a comparatively small impact on economic activity, reducing GDP in affected countries by perhaps $17 billion in 2005. So although the number of terrorist attacks has fallen, and fewer people have been injured, the imputed economic benefits are limited—just a tenth of the costs.

That does not necessarily mean the extra spending was wasted. The number of attacks might have been even higher. In 2007 Britain's prime minister, Gordon Brown, said his country had disrupted 15 al-Qaeda plots since 2001. Yet so big is counter-terrorism spending and so limited is terrorism's economic impact that, even if 30 attacks like the London bombings of July 2005 were prevented each year, the benefits would still be lower than the costs. The authors conclude that spending is high because it is an insurance policy against a truly devastating operation such as a dirty bomb; and because, since terrorism is global, if one country improves security, so must others.

Terrorists react to incentives. If you tighten airport security, they hit trains. If you improve security at embassies, they kidnap businessmen. If you disrupt routine operations, they try deadlier ones. The authors reckon that, though the number of attacks and injuries has fallen since 2001, deaths have risen. Anti-terrorist spending displaces, as well as reduces, terrorism.

To get a sense of what might work better, the authors ask what would happen if spending were raised by 25%. Not much, they think: spending is inefficient now and would remain so. To see what might happen if there were more vigorous military action, they extrapolate from 2002-03, when America's belligerent response to September 11th was beginning. There were fewer terrorist attacks, they say, but the balance of costs and benefits is still poor—between five and eight cents of benefit for every dollar spent. But international co-operation to disrupt terrorist finances would be cost-effective, they think, producing $5-15 of benefits for each $1.

Given the uncertainties of the calculations, such figures can hardly be a blueprint for radically reordering spending priorities. But they are a reminder that throwing money at terrorism works no better than throwing money at anything else, and that some kinds of anti-terrorist spending are more efficient than others.

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* "Transnational Terrorism", by Todd Sandler, Daniel Arce and Walter Enders. www.copenhagenconsensus.com

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Monitor

The battle for Wikipedia's soul

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Illustration by Frazer Hudson

The internet: The popular online encyclopedia, written by volunteer contributors, has unlimited space. So does it matter if it includes trivia?

IT IS the biggest encyclopedia in history and the most successful example of "user-generated content" on the internet, with over 9m articles in 250 languages contributed by volunteers collaborating online. But Wikipedia is facing an identity crisis as it is torn between two alternative futures. It can either strive to encompass every aspect of human knowledge, no matter how trivial; or it can adopt a more stringent editorial policy and ban articles on trivial subjects, in the hope that this will enhance its reputation as a trustworthy and credible reference source. These two conflicting visions are at the heart of a bitter struggle inside Wikipedia between "inclusionists", who believe that applying strict editorial criteria will dampen contributors' enthusiasm for the project, and "deletionists" who argue that Wikipedia should be more cautious and selective about its entries.

Consider the fictional characters of Pokémon, the Japanese game franchise with a huge global following, for example. Almost 500 of them have biographies on the English-language version of Wikipedia (the largest edition, with over 2m entries), with a level of detail that many real characters would envy. But search for biographies of the leaders of the Solidarity movement in Poland, and you would find no more than a dozen—and they are rather poorly edited.

Inclusionists believe that the disparity between Pokémon and Solidarity biographies would disappear by itself, if only Wikipedia loosened its relatively tight editorial control and allowed anyone to add articles about almost anything. They argue that since Wikipedia exists online, it should not have the space constraints of a physical encyclopedia imposed upon it artificially. ("Wikipedia is not paper", runs one slogan of the inclusionists.)

Surely there is no harm, they argue, in including articles about characters from television programmes who only appear in a single episode, say? After all, since most people access Wikipedia pages via search, the inclusion of articles on niche topics will not inconvenience them. People will not be more inclined to create entries about Polish union leaders if the number of Pokémon entries is reduced from 500 to 200. The ideal Wikipedia of the inclusionists would feature as many articles on as many subjects as its contributors were able to produce, as long as they were of interest to more than just a few users.

Deletionists believe that Wikipedia will be more successful if it maintains a certain relevance and quality threshold for its entries. So their ideal Wikipedia might contain biographies of the five most important leaders of Solidarity, say, and the five most important Pokémon characters, but any more than that would dilute Wikipedia's quality and compromise the brand. The presence of so many articles on trivial

subjects, they argue, makes it less likely that Wikipedia will be taken seriously, so articles dealing with trivial subjects should be deleted.

The rules of the game

In practice, deciding what is trivial and what is important is not easy. How do you draw editorial distinctions between an article entitled "List of nicknames used by George W. Bush" (status: kept) and one about "Vice-presidents who have shot people" (status: deleted)? Or how about "Natasha Demkina: Russian girl who claims to have X-ray vision" (status: kept) and "The role of clowns in modern society" (status: deleted)?

To measure a subject's worthiness for inclusion (or "notability", in the jargon of Wikipedians), all kinds of rules have been devised. So an article in an international journal counts more than a mention in a local newspaper; ten matches on Google is better than one match; and so on. These rules are used to devise official policies on particular subjects, such as the notability of pornographic stars (a *Playboy* appearance earns you a Wikipedia mention; starring in a low-budget movie does not) or diplomats (permanent chiefs of station are notable, while *chargés d'affaires ad interim* are not).

Jimmy Wales, the founder of Wikipedia, has himself fallen foul of these tricky notability criteria. Last summer he created a short entry about a restaurant in South Africa where he had dined. The entry was promptly nominated for deletion, since the restaurant had a poor Google profile and was therefore considered not notable enough. After a lot of controversy and media coverage (which, ahem, increased the restaurant's notability), the entry was kept, but the episode prompted many questions about the adequacy of the editorial process.

As things stand, decisions whether to keep or delete articles are made after deliberations by Wikipedia's most ardent editors and administrators (the 1,000 or so most active Wikipedia contributors). Imagine you have just created a new entry, consisting of a few words. If a member of the Wikipedia elite believes that your submission fails to meet Wikipedia's notability criteria, it may be nominated for "speedy" deletion—in other words, removed right away—or "regular" deletion, which means the entry is removed after five days if nobody objects. (To avoid deletion or vandalism, many highly controversial articles, such as the entries on the Holocaust, Islam, terrorism or Mr Bush, can be "locked" to prevent editing or removal.)

If your article is selected for deletion, you may choose to contest the decision, in which case you may be asked to provide further information. There is also a higher authority with the ultimate power to rule in controversial cases: the Arbitration Committee, which settles disputes that the administrators cannot resolve.

Debates about the merits of articles often drag on for weeks, draining energy and taking up far more space than the entries themselves. Such deliberations involve volleys of arcane internal acronyms and references to obscure policies and guidelines, such as WP:APT ("Avoid Peacock Terms"—terms that merely promote the subject, without giving real information) and WP:MOSMAC (a set of guidelines for "Wikipedia articles discussing the Republic of Macedonia and the Province of Macedonia, Greece"). Covert alliances and intrigues are common. Sometimes editors resort to a practice called "sock puppetry", in which one person creates lots of accounts and pretends to be several different people in a debate so as to create the illusion of support for a particular position.

The result is that novices can quickly get lost in Wikipedia's Kafkaesque bureaucracy. According to one estimate from 2006, entries about governance and editorial policies are one of the fastest-growing areas of the site and represent around one-quarter of its content. In some ways this is a sign of Wikipedia's maturity and importance: a project of this scale needs rules to govern how it works. But the proliferation of rules, and the fact that select Wikipedians have learnt how to handle them to win arguments, now represents a danger, says Andrew Lih, a former deletionist who is now an inclusionist, and who is writing a book about Wikipedia. The behaviour of Wikipedia's self-appointed deletionist guardians, who excise anything that does not meet their standards, justifying their actions with a blizzard of acronyms, is now known as "wiki-lawyering".

Mr Lih and other inclusionists worry that this deters people from contributing to Wikipedia, and that the welcoming environment of Wikipedia's early days is giving way to hostility and infighting. There is already some evidence that the growth rate of Wikipedia's article-base is slowing. Unofficial data from October 2007 suggests that users' activity on the site is falling, when measured by the number of times

an article is edited and the number of edits per month. The official figures have not been gathered and made public for almost a year, perhaps because they reveal some unpleasant truths about Wikipedia's health.

It may be that Wikipedians have already taken care of the "low-hanging fruit", having compiled articles on the most obvious topics (though this could, again, be taken as evidence of Wikipedia's maturity). But there is a limit to how much information a group of predominantly non-specialist volunteers, armed with a search engine, can create and edit. Producing articles about specialist subjects such as Solidarity activists, as opposed to Pokémon characters, requires expert knowledge from contributors and editors. If the information is not available elsewhere on the web, its notability cannot be assessed using Google.

Illustration by Frazer Hudson

To create a new article on Wikipedia and be sure that it will survive, you need to be able to write a "deletionist-proof" entry and ensure that you have enough online backing (such as Google matches) to convince the increasingly picky Wikipedia people of its importance. This raises the threshold for writing articles so high that very few people actually do it. Many who are excited about contributing to the site end up on the "Missing Wikipedians" page: a constantly updated list of those who have decided to stop contributing. It serves as a reminder that frustration at having work removed prompts many people to abandon the project.

Google has recently announced its own entry into the field, in the form of an encyclopedia-like project called "Knol" that will allow anybody to create entries on topics of their choice, with a voting system that means the best rise to the top. Tellingly, this approach is based on individualism rather than collaboration (Google will share ad revenues with the authors). No doubt it will produce its own arguments and unexpected consequences. But even if it does not turn out to be the Wikipedia-killer that some people imagine, it may push Wikipedia to rethink its editorial stance.

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Monitor

Guiding light

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Display technology: Three-dimensional television pictures for all the family, with no need for special glasses, could be on the way

THREE-DIMENSIONAL moving pictures have not changed much over the decades. Even Disney's latest contribution, "Meet the Robinsons", requires the audience to wear polarising glasses. Television has moved on a little more than cinema, but not much. Designs exist for screens that feed separate images to a viewer's right and left eyes, thus achieving the same effect as the polarising specs. Unfortunately, only one viewer at a time is able to benefit, because he has to sit in line with the centre of the screen in order for it to work.

That may be about to change. A new form of 3-D display being developed by Ian Sexton and his colleagues at De Montfort University, in Leicester, could allow people to watch from anywhere in the room, with no need for special glasses. Better still, it can be modified to allow a whole family to watch, rather than just a lone individual—and it might even let different people watch different channels at the same time.

All 3-D representations of moving images work by sending slightly different images to each eye. The brain can be fooled because this is how it perceives depth when confronted with the real world, rather than a flat screen.

Existing 3-D TV (at least, the sort that does not need glasses) creates the separate images by showing them as alternating lines across the screen. The light from the lines is directed to the appropriate eye using either tiny lenses or diffraction gratings over each pixel (the dots of which the picture is composed). These are arranged so that one set of rows can be seen only from the right-hand side, and the other can be seen only from the left.

It sounds clumsy, but it works—for a single viewer. Dr Sexton and his colleagues have adapted the technique to steer each image in several directions at once. The result is that moving images can be seen in 3-D by up to four people, even as they squabble about who should sit where on the sofa. This is done by adding two new gizmos to the equipment. One is a system that tracks the whereabouts of the audience's heads. The other is a novel diffraction technique, known as holographic projection.

The head-tracking system, which was developed by the Fraunhofer Heinrich-Hertz Institute in Germany, works by calculating how far away a head is, based on its apparent size (the direction is obvious, of course). It can also identify and monitor the position of the eyes, so it knows exactly where each image needs to be beamed, and passes this information on to the holographic-projection system.

This does not involve holographic images of the usual sort, but is a way of projecting beams of light wherever they are needed. It is done using a special type of liquid-crystal array developed by a British firm called Light Blue Optics, which is also developing the technology for use in tiny projectors (see article). The alignment of the liquid crystals in the array controls the direction in which light is reflected from them. That alignment is, in turn, controlled by the tracking system. The upshot is that the crystals can steer light towards four separate points corresponding to the places where the viewers' right or left eyes are. By taking signals from multiple video sources and beaming them to different viewers, more than one person can then use the display at once, though the viewers would obviously need headphones for the different soundtracks.

It will probably be a few years before you can have one of these at home. Mass production, Dr Sexton reckons, is a decade away. But specialised applications—particularly in medicine—should be much closer. It would help doctors a lot, for example, if the images from endoscopes could be shown in 3-D. But that is probably not something you would want to see in your living room.

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Monitor

More to it than meets the eye

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Materials science: As more commercial uses are developed for holograms, they may soon be found all over the place

Smart Holograms Ltd

Two for the price of one

MENTION the word "hologram" and most people will think of the kind of three-dimensional image seen on some credit cards and banknotes. But holography is starting to find uses in other fields. A hologram is a special interference pattern created in a photosensitive medium (which can be as simple as a traditional photographic film). Light striking this pattern is scattered as though it were actually striking the object that the interference pattern is encoding. The pattern itself has usually been created by a clever trick using lasers. This involves combining two beams, one of which has been bounced off the object to be holographed. The combined beam then strikes the photosensitive medium and the result is the interference pattern that generates the 3-D picture.

Smart Holograms, a firm based in Cambridge, England, has found a way to store not one but two holograms in a single piece of photosensitive material. The material is a type of superabsorbent synthetic polymer, called a hydrogel, that contains silver halide grains of the sort used in many photographic processes. The hydrogel itself swells and contracts, depending on how much water it contains. In its swollen state it produces one image; in its contracted state, the second.

John Pritchard, the firm's chief technical officer, will not go into details about exactly how two images can be stored in the same material at the same time. But he hints that it has to do with the way that swelling alters the material's refractive properties, causing different wavelengths of light to be influenced by two separate interference patterns. The result can be used to make a simple test for a liquid's water content. In particular, Smart Holograms thinks it could be used to test aviation fuel. This must have a water content below 30 parts per million, otherwise it can freeze in mid-air, with potentially disastrous consequences.

To pre-empt this problem, Smart Holograms has developed a sensor called H2NO. If a sample of fuel placed on the surface of the hologram has too much water in it, the holographic logo changes to reveal a red cross. Dr Pritchard and his colleagues hope to extend the idea to other areas, such as medical diagnosis. By priming the hydrogels with chemicals that bind to glucose, for example, it may be possible to create blood-glucose monitors for use by diabetes sufferers.

Another new use for holography is data storage. InPhase Technologies of Longmont, Colorado, does this using a series of holographic images, each of which is a grid of light and dark patches corresponding to 1s and 0s. These are stored on a disk that is read, one such grid at a time, by a laser. The disk is able to hold lots of data because each grid is made visible from a slightly different angle, just as a hologram of a solid object can be seen from different angles. InPhase recently launched its first commercial holographic

drive, capable of storing 300 gigabytes on each disk, or the same as about 60 DVDs.

But the data stored on these disks cannot be changed or erased after being written. Fortunately, Nasser Peyghambarian of the University of Arizona, in Tucson, may have found a way around this problem. His photorefractive polymer, which he reported recently in *Nature*, stores images in an unusual way. Instead of (for example) converting silver halide into particles of metallic silver to form an image, the incoming laser beams change the distribution of electrons within the material. That, in turn, creates irregularities in its refractive properties, forming a diffraction pattern. A new pair of laser beams redistributes the electrons, creating a new hologram—and the process can carry on indefinitely.

As well as creating rewritable holographic storage, this technique might also be able to generate moving holograms, provided the rewriting was fast enough to fool the eye. It is yet another possible path to 3-D television, which seems to be coming, one way or another.

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Monitor

The new shape of circuitry

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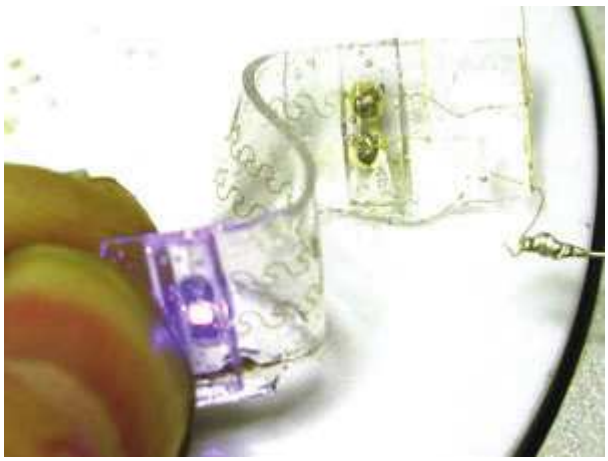
Materials: Making circuits that are stretchable could open up a host of new applications, from medical sensors to video-game controllers

IMEC



Electronics go elastic

ELECTRONIC circuits that stretch like elastic bands or expand like balloons sound not just fanciful, but impractical. Yet a little flexibility could be useful, at least in some situations: for medical implants and sensors, for example. IMEC, a Belgian research group, has recently made a start on this idea by building tiny electric wires that can stretch to twice their length without breaking.

IMEC produced its stretchy wires by encapsulating tracks of gold that look like meandering rivers within an elastic silicone film. The arrangement works like a flat spring: when it is stretched, the spring opens up without the wires breaking. And just in case a break does happen, neighbouring tracks are arranged in sets of four, cross-connected at regular intervals, to ensure an unbroken connection.

These stretchy circuits can be built using standard techniques. To demonstrate the idea, IMEC has made a prototype of a stretchable digital watch. It still contains some rigid components, like solid islands within a sea of stretchy silicone material. Nevertheless Jan Vanfleteren, who is leading the project, hopes that future versions will be made fully flexible by using an ultra-thin chip-packaging technology that IMEC is developing.

This work is part of a collaborative project, called STELLA (Stretchable Electronics for Large Area Applications), which numbers Philips, a Dutch electronics giant, and Urgo, a French producer of sticking plasters and bandages, among its participants. But this is not the only group interested in the field.

Nokia, the world's largest mobile-phone maker, is working with Stéphanie Lacour, of the University of Cambridge's Nanoscience Centre, to develop a way to deposit gold films onto elastomers (elastic polymers), to make the films stretchy as well as bendable. Normally a gold film will fracture if stretched by as little as 1-2% of its original length. Dr Lacour's stretchy film, however, contains an array of tiny Y-shaped cracks. When it is pulled, the cracks open up and the film remains intact. It could thus provide a reliable way to wire up tiny silicon chips that could also be embedded in the elastomer.

Such “stretchable electronic skin”, as Nokia dubs it, is initially intended for use in touch sensors. Tapani Ryhanen, Nokia's head of strategic research, suggests that stretchy sensors built into clothing could be used to measure emotional states. And an entire body suit made from flexible electronics and sensors could be the ultimate video-game controller.

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Monitor

A healing balm

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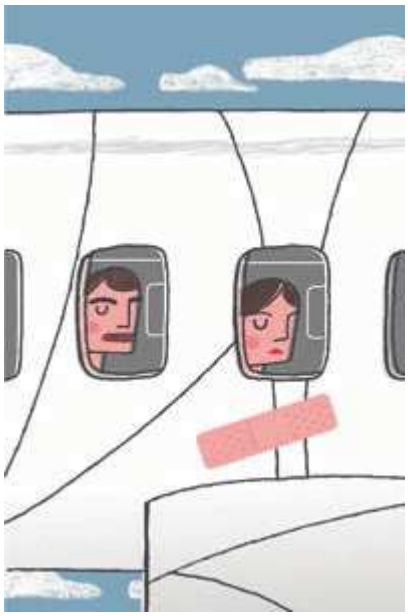
Materials science: Self-healing substances that are capable of repairing themselves when damaged are under development

Illustration by Robin Chavalier



ONE of the differences between animals and machines is that animal bodies can repair a lot of the damage that a cruel and hostile world inflicts on them. A machine, by contrast, has to wait for someone to come and fix it. But that may change if researchers in the field of self-repairing materials have their way. Two groups in particular—one in America and one in Britain—are trying to create composite materials that mend themselves if they get cracked, in much the same way that an animal's broken bone heals itself. The difference is that these materials will heal in minutes rather than months.

Such self-healing composites may take a while to enter everyday use. But if they can be made reliably they will be welcome in high-stress applications that are difficult to inspect regularly (the blades of wind turbines, for example) or are critical to safety (such as the doors and window-frames of aircraft).

Jeffrey Moore and his colleagues at the University of Illinois are working on the problem by adding extra components to their composites. Like most such materials, these composites consist of fibres (in this instance, carbon fibres) embedded in a plastic matrix (an epoxy resin). The main extra component added by Dr Moore is a sprinkling of tiny capsules containing a chemical called dicyclopentadiene. If the composite cracks, the capsules near the crack break open and release the dicyclopentadiene molecules, which link together to form another type of plastic that binds the crack together and thus heals the material.

To start with, Dr Moore had to nurse this process along by adding a second extra component—a catalyst based on ruthenium. This worked well in the laboratory, but ruthenium is too expensive for mass deployment. However, when he was playing with solvents that might be added to the system to speed the transfer of the dicyclopentadiene to the cracks it is intended to heal, he found a solvent that encouraged the process to work without the ruthenium catalyst. Alas, the solvent Dr Moore hit on, chlorobenzene, is pretty nasty stuff (it is used, for example, in the manufacture of DDT). But he has since found a suitable alternative that turns out to be even better. The chlorobenzene process restored only 80% of a material's original toughness. The new solvents restore it completely.

Ian Bond and his colleagues at the University of Bristol's department of aerospace engineering are taking a slightly different approach. They use glass fibres rather than carbon fibres in their composite and, instead of adding capsules, they have put the healing molecules into the fibres themselves. The molecules in question are the two ingredients of epoxy resin. Half the fibres contain one ingredient and half contain the other. A crack in the material breaks the fibres, releasing the ingredients which react, form more epoxy, and thus mend the crack. The advantage of this approach is that it retains the basic fibre-plus-matrix structure of the material. Adding capsules changes that and risks weakening it. The disadvantage is that capsules are easier (and therefore cheaper) to make than hollow, fluid-filled fibres.

Whichever system is adopted (and both might be, for different applications), two further things are needed. One is a way of checking that a component really has healed. The other is a way to top up the healing molecules once some of them have been used. Dr Bond thinks that one way to make healed "wounds" obvious would be to add a bit of colour. A repaired area would, in effect, develop a bruise. Topping up the supply of healing fluid might be done by mimicking another biological system—the network of blood capillaries that supplies living tissues with the stuff they need to thrive. Both Dr Moore and Dr Bond are attempting to borrow from nature this way. If they succeed, the machines of the future

will have longer and healthier lives.

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Monitor

Stay tuned

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Communications: Broadcasters plan to hop, skip and jump around the world with a new long-range digital-radio technology

EVERY evening in 1960s Britain, millions of young people—many hiding under their bedsheets—would twiddle the dials on their transistor radios. They were tuning in on medium wave to Radio Luxembourg's nocturnal English transmissions. They wanted to listen to pop music, the likes of which could not be heard on the stuffy old BBC. With the deregulation of radio and the arrival of hordes of commercial rivals, Radio Luxembourg lost its audience, and went off air in 1992. But now it is planning a comeback using a new technology that can provide high-quality digital broadcasts over long distances.

Several broadcasters besides the RTL Group, which owns Radio Luxembourg, are testing this digital replacement for traditional long-, medium- and short-wave radio. It is called Digital Radio Mondiale (DRM)—confusingly, the same acronym as that for digital rights-management. It has been developed by a consortium of broadcasters and equipment-makers including Deutsche Welle and the BBC World Service. And it has now been endorsed as an international standard.

This standard is for frequencies below 30MHz—those used by amplitude-modulated (AM) services since the earliest days of broadcasting. The problem with such AM broadcasts is that they are prone to interference. That was why FM (frequency modulation) was introduced after the second world war. The advantage of AM is that it has greater range than FM, since the very high frequencies required by frequency modulation do not travel far. Indeed, some AM broadcasts, especially on short wave, bounce between the ionosphere and the ground in a way that allows them to travel huge distances—sometimes halfway round the world. This phenomenon, known as skywave, is particularly powerful at night.

DRM provides the same range as traditional AM transmissions without the interference—on the face of it, the best of both worlds. It is also cheap. It can be broadcast by modifying existing AM equipment and does not use as much electricity as an equivalent AM service. And it will cover several countries with just one transmitter. Reinhold Böhm, a senior researcher at Dolby, an audio firm that is part of the DRM consortium, says that in one test a signal transmitted from Europe was received well in Australia with only two “hops” along the skywave.

In a shorter-range trial a DRM signal from Austria was received all over Britain, says Bryan Coombes of VT Communications, who is vice-chairman of the DRM consortium. That means broadcasters could reach niche markets in other countries without having to set up shop in them. It could also maintain the flow of news to countries during political crises—hence the BBC's interest.

Of course, DRM faces competition from satellite broadcasting and internet radio. (Radio Luxembourg, hedging its bets, has already begun broadcasting online.) Nevertheless, there is something appealing about the idea of a global radio station with a single transmitter.

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Innovation awards

Bright sparks

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Innovation Awards: We invite nominations for our annual prizes recognising innovators

THE ECONOMIST'S seventh annual Innovation Summit will take place in London on October 31st. Speakers from industry and academia will examine the latest trends in the management of innovation, from the laboratory to the marketplace. At an awards ceremony on October 30th, we will also honour successful innovators in a range of fields.

Accordingly, readers are invited to nominate outstanding innovators in seven categories: bioscience; energy and the environment; computing and telecoms; "no boundaries" (which includes materials science, nanotechnology and other emerging fields); consumer products; business process; and social and economic innovation, a category that recognises individuals who have pioneered novel technologies and business models that improve everyday lives.

Nominees should be people, not companies, who are responsible for an innovation that has been a proven success in the past decade. Please e-mail innovation@economist.com, giving the nominee's name, current affiliation and contact information, and a 200-word summary explaining why he or she deserves to win the award in a particular category. Nominations can also be submitted at www.economist.com/innovationawards. The deadline is April 7th.

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Monitor

Making a total hash of it

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Computing: A supposedly cast-iron way of identifying digital documents, known as a hash function, is looking a bit rusty

Illustration by Robin Chavalier

WOULD you like to know who is going to win the American presidential election? If so, go to www.win.tue.nl/hashclash/Nostradamus. Well, not quite. The site will not actually give you the answer (for fear of turning it into a non-self-fulfilling prophecy, its builders claim), but it does offer proof that the winner is already known. That is because those builders, led by Benne de Weger of the Technical University in Eindhoven, in the Netherlands, have posted a "hash" of the document containing the winner's name.

A hash, for the uninitiated, is a way of turning a computer file (in principle, any data) into a small identifier that, although not unique, can represent that file in useful ways. A simple way to hash the words *The Economist* would be to change the letters into numbers (1 for a, 2 for b and so on). This done, neighbouring pairs of numbers could be added up, and then pairs of the results added repeatedly until only three, say, are left.

A hash of *Wired* made the same way would have only one chance in 1,000 of being the same as *The Economist*'s because there are 1,000 different combinations of three digits. Nor would it be easy to work out any other combination of letters that would match *The Economist*'s hash. So when, on 5th November, Dr de Weger posts the document containing the name of the winner of the presidential election, and that document's hash (calculated by a recipe called MD5) matches the one previously published on the site, you may be forgiven for thinking that he really did make a correct prediction.

Of course, it is all an illusion. He would certainly not have time, once the result is known, to construct a document containing the name of the winner in such a way that its hash would come out just right. That would be what cryptographers call a "pre-image attack", and no way of mounting such an attack is known. Instead, Dr de Weger's group has concentrated its efforts on the other property of hashes: that it is hard to find two documents that have the same hash. Hard, but as it turns out, not impossible. Constructing two such co-incidental documents is known as a "collision attack". And that is what the researchers have done. Indeed, they have created not merely two, but 12 documents that have the same hash. Each of these documents contains the name of one of the 12 leading presidential candidates, so it is just a question of posting the right one once the result of the election is known.

To do this, Dr de Weger has made use of the fact that a hash recipe is always repetitive. It crunches the data it is given down to a smaller set of data, which is then subjected to the same recipe again, and so on. Studying the intermediate results allowed a Chinese researcher, Xiaoyun Wang, to find a way of producing collisions when using the MD5 recipe. She compared what happened to the hashes of two distinct sets of data, and used the differences in the intermediate results to suggest changes to the original data that would increase the chances of their hashes colliding.

Dr de Weger and his friends have gone further, again by paying close attention to the way the MD5 recipe repeatedly shreds the data it is given. It turns out that once you have two colliding documents, you can add non-random chunks of data in such a way that the documents still collide. The result: a dozen perfectly normal-looking PDF files that do not flaunt the fact that they share the same hash.

The point of all this is to expose the weakness of MD5 hashing. You could, for instance, present your boss with a document to sign. If this all happened electronically, the document might then be hashed to make sure it was not altered after the signing. But if you have a suitably prepared collision attack at your

disposal, and have created two very different documents with the same hash, then your boss is at your mercy. Now that could come in handy.

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Monitor

Down and dirty

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Energy: If geothermal energy, which exploits underground heat reserves, is to become widespread, it will have to work outside volcanic areas

IN THE world of environmental activism there is a good rule of thumb. If an energy source comes out of the ground, it is probably bad (think coal, oil, natural gas and, in the view of many, uranium). If it does not, then it is probably good (think wind, wave and solar power). But there is an exception. Even the most hair-shirted environmentalist finds it hard to argue against geothermal energy. When what comes out of the ground is merely hot water or steam there is, as it were, little to get steamed up about.

The problem is that traditional geothermal power relies on volcanism. That is fine if you live in Iceland or New Zealand. But it is not so good in a geologically passive place such as Germany. Which is why Wulf Brandt, of the National Research Centre of Geosciences in Potsdam, has dug a deep hole in the ground at Gross Schönebeck, near Berlin.

Dig deep enough and geothermal energy is everywhere, since the temperature increases by 25-30°C for every kilometre you go down. Generating electricity requires a temperature above 150°C to be viable. In the case of the rocks under Gross Schönebeck, that means digging to a depth of 4.4km (2.8 miles)—and then doing so all over again. For unlike volcanic geothermal energy, which is supplied by water or steam gushing to the surface unprompted, the non-volcanic variety requires a pump, and two holes in the ground, rather than one. Cold water goes down the first hole, and hot water comes up the second.

Mr Brandt picked Gross Schönebeck because one of these two holes was available for nothing. It had been drilled by a gas-exploration company, but had proved "dry". Mr Brandt drilled the other hole to the same depth as the first, about 400 metres away. That, he reckoned, was far enough for water travelling between the two holes to heat up without cooling the intervening rocks too rapidly.

The question was, would water pushed down the first hole force water up the second in large enough quantities, and at high enough temperatures, to be commercially viable? To start with, the answer was no. But as the experiment progressed, the rate of flow increased—and this was no accident.

One of the things Mr Brandt had taken into account when he planned the experiment was the grand movement of the Earth's tectonic plates. He aligned the two holes in order to benefit from the tension created, even as far north as Berlin, by the collision of African and Eurasian plates that uplifted the Alps. The downward-flowing water, which was injected at a pressure of 500 atmospheres, gradually forced apart existing fissures, and created new ones, in such a direction that the tension helped keep them open.

Another trick was to add grains of sand and a mineral called corundum to the water. These grains were the right size to help keep the fissures open without blocking them. The result was that the rate of flow increased towards the 75 cubic metres per hour that is needed to make an electricity plant viable.

It remains to be seen whether that flow rate can be sustained, and Gross Schönebeck can be turned into a commercial power station. But the auspices are good. If it can, it will pave the way for others. The supply of heat from the Earth's interior is, in practice, inexhaustible. And although any given site can be cooled to the point where it is useless—Mr Brandt reckons it would take about 30 years in the case of Gross Schönebeck—you can always dig more holes.

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Monitor

A bag full of sunshine

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Energy: A combination of flexible solar cells and low-energy lighting provides a way to bring electric light to isolated communities

Portable Light

Let there be light

IF YOU live in a remote area, particularly in a poor country, obtaining electricity can be a problem. It is probably too expensive to connect you to the grid, so you are left reliant on generators and batteries—and even these have to be wired to the points, such as light bulbs, where power is wanted. But Kennedy & Violich Architecture of Boston, Massachusetts may have the answer. In collaboration with Global Solar Energy of Tucson, Arizona, it has developed a cheap, practical and portable way to capture the sun's rays by day and release them by night as useful light, wherever it is needed.

The idea, dubbed "portable light", combines solar cells with light-emitting diodes attached to the surface of a fabric that can be made into bags, and thus carried around during daylight hours. In sunlight, the cells generate electricity that is stored in batteries stitched into the material. When it gets dark, the batteries power light-emitting diodes that are also sewn onto the cloth.

The solar cells themselves are made from a substance called copper indium gallium diselenide, Global Solar Energy's speciality. This is not quite as good at capturing sunlight as silicon, the material from which solar cells are usually made, but it is less rigid and easier to work with. Crucially, a working cell can be made by spreading a thin layer of the stuff on another material, such as a sheet of plastic. The result is flexible and fairly robust.

Storing the electricity generated by the solar cells involves small batteries that are also woven into the fabric, along with plastic-coated wire connectors. Rechargeable lithium-ion batteries—the sort used in mobile phones—can store more energy per unit weight than other types, and do not lose their charge too rapidly if they go unused for long periods.

These batteries then power hundreds of light-emitting diodes a few millimetres across that are sewn into the fabric on the opposite face from the one occupied by the solar cells. Until recently, such diodes were expensive and did not shine very brightly. But they have improved enormously over the past few years and are now used in mainstream lighting. (A town in Italy recently became the first to switch its street lighting over to such diodes.) Light-emitting diodes are well suited to providing portable illumination, because they are robust, they are not heavy and, unlike traditional bulbs, they do not become too hot to touch.

So far, so good. But there was room for further improvement. As the person carrying the bag moves around, parts of it will be in the shade while others are overwhelmed with sunlight. So the engineers devised a way to direct the energy where it is most needed. To do this, they have woven sensors and switches into the fabric. These ensure that energy from a fully illuminated photovoltaic cell is sent to batteries that are not already receiving electricity at the highest rate they can store it.

In this way, the engineers have created a device that can stash away enough electricity to power the light-emitting diodes for ten hours after three hours in full sunlight. Unlike conventional light sources, the fabric can be spread out to provide background lighting for an entire room or rolled up to generate more concentrated light for a particular task. Moreover, many pieces can be joined together to produce light for larger meetings, and also to power devices such as mobile phones.

The first beneficiaries of this technology are the Huichol, a group of Amerindian people who live in the Sierra Madre mountains of Mexico, but if all goes well, Kennedy & Violich hopes to sell its invention to rural communities in Africa and Australia as well. And at $50 per bag—less than the average Huichol spends on candles and torch batteries each year—it seems a bargain.

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Less troubled waters

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Chemistry: Detergents with active ingredients that can be switched on and off should help the oil industry, as well as getting clothes clean

IN CHEMISTRY, as in personal relations, reducing tension is important if you want mixing to occur. In a chemical context, the surface tension between liquids that do not mix easily, such as oil and water, can be reduced using a surface-active agent, or surfactant. That is what allows soap, the oldest artificial surfactant, to lift oily dirt from clothes and skin into water. In many situations, it would be useful to be able to "tune" the surfactant, and adjust the level of surface tension.

Annette Dexter and Anton Middelberg of the University of Queensland in Australia have found a way to do just that, using specially designed surfactants, called Pepfactants, made of amino acids—the building blocks of proteins. Some amino acids avoid water, whereas others avoid oily substances. Pepfactants are spiral-shaped molecules that incorporate 21 amino acids of both flavours, two of which are linked to a metal atom, such as zinc. En masse, the spirals tend to link together to form a film that has one oil-avoiding side and one water-avoiding side. They wrap themselves around oily substances suspended in water, and keep them in suspense.

This is similar to the way that all surfactants work. The trick is that the spirals come undone when the zinc is removed. That is achieved by adding a small amount of a chemical called a chelating agent, which scoops up the zinc atoms, or an acid, which bumps them out of the way. As the spirals unfold, the films disintegrate. The oily and watery components of the mix then return to their tense, separate relationship. The process is reversible and happens in a few seconds.

Adding a dash of Pepfactants to laundry detergent seems to confer this switching ability on the whole mixture. It should then be possible to switch off the films that give rise to soap bubbles between the washing and rinsing cycles, so that less water is needed to remove the suds. Pepfactants are biodegradable, so they could also be useful in pharmaceuticals and cosmetics.

But their main use may be in the oil industry. Even after an oil well has been pumped dry, a substantial fraction of its contents remains tucked away in the nooks and crannies of the rock. One way to gather and extract that oil is to inject water laced with a surfactant into the well, creating an oil-rich mixture which is drawn to the surface. Once there, though, the mixture must be separated—a process that involves further chemical treatment. Pepfactants might be able to make that process considerably easier.

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Monitor

End of a dammed nuisance

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Energy: A new generation of free-standing turbines promises to liberate hydroelectric power from its dependence on dams

Illustration by Robin Chavalier

EVEN in today's more environmentally conscious times, hydroelectric dams are often unwelcome. Although the power they generate is renewable and appears not to produce greenhouse-gas emissions, there are lots of bad things about them. Blocking a river with a dam blocks the movement both of fish upstream to spawn and of silt downstream to fertilise fields. The vegetation overwhelmed by the rising waters decays to form methane—a far worse greenhouse gas than carbon dioxide. The capital cost is huge. And people are often displaced to make way for the new lake. The question, therefore, is whether there is a way to get the advantages of hydropower without the drawbacks. And the answer is that there may be.

The purpose of a dam is twofold: to house the turbines that create the electricity and to provide a sufficient head of water pressure to drive them efficiently. If it were possible to develop a turbine that did not need such a water-head to operate, and that could sit in the riverbed, then a dam would be unnecessary. Such turbines could also be put in places that could not be dammed—the bottom of the sea, for example. And that is what is starting to happen, with the deployment of free-standing underwater turbines.

The big disadvantage of free-standing turbines is that they are less efficient than turbines in dams at turning the kinetic energy of moving water into electricity. They are also subject to more wear and tear than turbines protected by huge amounts of concrete. They can be hard to reach for repairs and maintenance. And their generators, being electrical machines, must be protected from the water that surrounds the rest of the turbine.

A discouraging list. But in the past three decades computing power has became cheaper, helping developers to simulate the behaviour of water and turbine blades—something that is hard to do with paper, pen and formulas. Moreover, prototypes can be built directly from the computer models. All this has helped scientists and industry to solve the inherent problems of free-standing turbines.

The first new design was by Alexander Gorlov, a Russian civil engineer who worked on the Aswan High Dam in Egypt. He later moved to America where, with the financial assistance of the Department of Energy, he produced the first prototype of a turbine that could extract power from free-flowing currents "without building any dam". The Gorlov Helical Turbine, as it is known, allows you to use any stream, whatever the direction of its flow. The vertical helical structure, which gives the device its name, provides a stability that previous designs lacked. It is also relatively efficient, extracting 35% of the energy from a stream. In addition, since the shaft is vertical, the electric generator can be installed at the top, above the water—so there is no need for any waterproof boxes.

In 2001 Mr Gorlov won the Edison patent award for his invention, and his turbines have now been commercialised by Lucid Energy Technologies, an American company. They are being tested in pilot projects in both South Korea and North America.

A second design is by Philippe Vauthier, another immigrant to America, who was originally a Swiss jeweller. The turbines made by his company, UEK, are anchored on a submerged platform. They are able to align themselves in the current like windsocks at an aerodrome, so that they find the best position for power generation. Being easy to install and maintain, they are being used in remote areas of developing countries.

Finally, a design by OpenHydro, an Irish company, is not just a new kind of turbine but also a new design of underwater electric generator. Generators (roughly speaking) consist of magnets moving relative to coils. So why not attach the magnets directly to the external, rotating parts of the turbine? The coils are then housed in an outer rim that encloses the rotating blades. And there is a large circular gap at the centre of the blades, which is safer for marine life. In addition, OpenHydro's generators do not need lubricant, which considerably reduces the need for maintenance.

These new designs, combined with growing interest in renewable-energy technologies among investors, mean that funding is now flowing into a previously neglected field. According to New Energy Finance, a specialist consultancy, investments in companies planning to build or deploy free-standing turbines have increased from $13m in 2004 to $156m in 2007. Projects already under way include the installation by American Verdant Power of a tidal turbine in the East River in New York, and UEK, OpenHydro and Canadian Clean Current are operating pilot projects in Nova Scotia.

And that, proponents of the technology believe, will just be the beginning. Soon, they hope, many more investors will be searching for treasures buried on the seabed—or, to be precise, in the water flowing just above it.

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Monitor

Your call is important to us

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Software: Making call centres run smoothly involves an ever-greater dependency on technological trickery behind the scenes

Illustration by Robin Chavalier

IT IS a familiar litany. Your call is important to us. An operator will be with you as soon as possible. Your call may be recorded for quality-control and training purposes. These phrases are familiar because the use of call centres has become so commonplace: in 2007 companies worldwide spent some $280 billion on outsourced call-centre services, according to NASSCOM, a call-centre trade group in Delhi. Costs are rising (they jumped 30% last year in India), customers are becoming more demanding, and competition is increasing. So the companies that operate call centres are adopting new software to monitor and improve performance.

One trick, which can shave seconds off each call, is to take into account "context data"—such as the caller's location, the local weather, the time of day and records of their recent transactions—when routing a call. Cisco, an American communications-equipment provider, recently upgraded its call-centre software to provide this feature, which is popular with financial institutions. The caller can then be put through to an agent who is experienced at handling a particular sort of transaction.

Aneesh Nair, head of the Academia, a call-centre training school in Bangalore, says context data may also include information gleaned from news reports. Storms, sporting events and transport strikes, for example, can affect callers' moods and purchasing dispositions, he says, and can be used to provide tips to agents. "Demographic mapping" features provide additional information about the products callers are most likely to buy based upon their location, time of call, and whether they are calling from a land-line or a mobile phone.

The next step, beyond analysing the context around a call, is to examine the call itself, using "word spotting" software to evaluate the performance of the agent and the reaction of the caller. There is strong demand for quality-control software, says Donna Fluss of DMG Consulting, a specialist consultancy based in West Orange, New Jersey, because call-centre managers are only able to listen to a few calls per agent each month. Word-spotting software allows managers to monitor agents much more closely.

As word-spotting systems spread, call-centre training schools have started coaching students in gaming the system so they look good under the additional scrutiny. JTS Institute, a cramped school in a bustling Bangalore neighbourhood, now shows students how to "prompt" callers with questions and statements that elicit the replies that word-spotting software, and call-centre managers, are looking for, such as "I understand" and "that's great". In addition, says Basheer Shaik, the head trainer, a good accent is even more important now that employers can see tallies of how many times a particular agent is asked to "repeat that". Students are encouraged to practise English even "with their parents who hardly understand English", he says.

The market for word-spotting systems is "gaining a lot of momentum," says Barak Eilam, general manager of NICE, a provider of word-spotting software based in Ra'anana, Israel. Its latest systems are designed to foil prompting by taking into account the context of high-scoring phrases. A caller who says "wonderful" shortly after the agent has said it, for example, may have been prompted.

As well as being used to evaluate the performance of agents, Mr Eilam says, word-spotting systems can also provide valuable insights about what callers think about a particular product, and how their vocabulary changes in response to advertising campaigns, recalls and publicity stunts. In one case word-spotting technology quickly alerted a refrigerator-maker to a design flaw after the words "tipped", "top-

heavy” and “fell” were uttered to call-centre agents in different countries just half a dozen times.

Much of India's call-centre industry, which employs roughly 300,000 agents, is located outside the ring road that encircles Bangalore, in a string of smart new business parks with tidy lawns and private security. Were it not for the stray dogs, a visitor could be forgiven for mistaking the area for Silicon Valley. Costs, of course, are much lower, but business leaders are aware of a growing threat from call centres in other countries such as the Philippines. Vasudevan Bharathwaj of 24/7 Customer, a call centre in Bangalore where 5,000 agents handle calls for 30 companies, explains that firms like his must innovate and develop intellectual property for sale to other firms.

Listening to the customer

Accordingly, programmers at 24/7 Customer have developed “neurolinguistic” software that does not just spot which words callers use—it tries to provide agents with insights into their psychology. Callers' words and cadences are analysed to create a profile that helps agents adjust their vocabulary and behaviour to improve their rapport. Agents receive on-screen tips on which phrases, sales pitches and conflict-resolution tricks are most likely to resonate. For example, callers who use “kinesthetic” terms such as “digging through the website” will be answered slowly with phrases suggesting body movement: “Please hold while I pull up more information.”

Similarly, Cisco's voice-analysis system monitors parameters including volume, cadence, tone, pitch and inflection, and then sorts callers into six personality types to help agents fine-tune call handling. “It's the bleeding edge,” says Laurent Philonenko, vice-president of Cisco's call-centre business in San Jose, California. Ms Fluss says “tremendous innovation” is under way in this area, and sales of caller-profiling systems will increase by 70% this year compared with 2007.

CUMA Mutual Group, a credit-union insurer in Madison, Wisconsin, installed such a system last year. Rick Roy of CUMA says it provides agents, who receive tips and script changes automatically during calls, with “another set of ears”. The same software can also be used for quality control, says Mr Eilam, by scoring agents depending on the way the caller's emotional state changes over the course of the call. Supervisors at many companies, he says, retain customers by phoning back those who exhibit “negative excitement” at the end of a call.

Some in the industry worry that voice analysis smacks of Big Brother, and prefer to keep quiet about it. Callers are usually told only that their call may be recorded for quality-control purposes. The JTS Institute does not mention the technology to its students. “Too much information”, says Mr Shaik, “is not good for them.”

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Rational consumer

Power plays

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DIY Kyoto

Consumer electronics: Displays that reveal how much electricity your home is using can give you a nasty but informative surprise

WHEN a car has a fuel-efficiency gauge—a continuous display on the dashboard showing the rate of fuel consumption—it tends to promote frugal driving. Trying to use as little fuel as you can, by driving more smoothly and being a little less heavy on the accelerator, can even become a game of sorts. Nissan, a Japanese carmaker, has calculated that fuel-efficiency gauges can reduce fuel consumption by an average of 10%, so it has decided to put them in all its cars.

What if you did the same thing to houses? A variety of products can provide real-time information about electricity consumption. Working out how much energy a house is using is harder than with a car, because electricity meters are generally hidden away in cupboards or cellars, and many people find them hard to understand. So an easily understood real-time read-out, akin to a car's fuel-efficiency gauge, could make a big difference.

The simplest such devices can be plugged in between an appliance and a wall socket, to display how much electricity the appliance is using. Plug in your toaster, hairdryer or radio and turn it on, and you can see how much power it consumes. There are also more elaborate devices that can measure the power consumption of an entire household, using a current sensor that clamps around the electricity cable running into the fusebox. The rate of consumption is then beamed wirelessly to a portable display unit. By carrying this unit around the house and switching things on and off, you can see how much power they draw.

The Owl is one device that works this way. Its portable display can be configured to update every six seconds or once a minute, which helps to extend the battery life of the transmitting unit next to the meter. Total household consumption can be displayed in a number of ways: in kilowatts (kW), in cost per hour (provided you enter the cost per kilowatt-hour into the device) and even in kilograms of carbon-dioxide emissions: the default is 1kg of carbon dioxide for 1kW of electricity, but it can be changed according to the generating source. (The carbon intensity of a particular tariff can often be looked up on your electricity company's website.)

Shocked, and shocked again

After you have set up the device you get the first shock: why is the house using so much electricity? Walking around and switching things off soon reveals where savings can be made: lights left on during the day, a television the children are not watching and a surprising number of power supplies keeping themselves warm while the things they are connected to are in “standby” mode. It is hard to get a house down to zero. There's always a fridge, a freezer and forgotten things, such as a television-signal amplifier

somewhere in the attic, or things you would rather not admit to (the dehumidifier keeping the classic car dry). Having switched things off, the second shock comes when you walk around turning things on. A washing machine, tumble dryer, dishwasher and electric oven produce alarming figures. And the oft-repeated advice about only boiling as much water as you need in the electric kettle makes sudden sense when you see your electricity consumption jump by 2.5kW.

The Wattson (pictured above the article) does a similar job, but also makes more detailed analysis possible. Contained within a stylish case, it can remember four weeks' worth of electricity-consumption data, which can be downloaded to a computer for further scrutiny. Besides showing usage patterns, it can produce coloured “mood” lights which change according to energy consumption: blue when you are being frugal, red when consumption soars.

The British government has raised the idea that free electricity-display units could be given to all households, to encourage energy conservation. But not everyone likes the idea. Energywatch, Britain's energy watchdog, has a number of concerns: such units do not measure gas consumption, for one thing, and although they may initially change people's behaviour, the novelty could soon wear off. It is also worried that giving away display units may come to be seen as an alternative to compulsory “smart” electricity meters.

These often include a display unit, but can also do clever things behind the scenes. Unlike simple displays, they can take different tariffs into account and provide accurate billing information. They can also be read remotely, either via a network connection that runs back to the utility, or from nearby using a short-range radio link. And if your house has solar panels or a wind turbine, smart meters can ensure that you are credited for any excess power that you sell back to the grid. Reliant Energy, an American firm, has been testing smart meters in Houston and Dallas. They can communicate with energy-hungry household appliances such as air-conditioners, water-heaters and swimming-pool pumps. The idea is that when the supply becomes tight, the power company can remotely turn down the power consumption of such items to reduce demand.

In an ideal world, every home would have a smart meter. But they are not the sort of thing you can go out and buy—let alone install for yourself. Even if they were given away it would take years to replace the millions of existing meters around the world. So small, cheap devices like the Owl and the Wattson can be useful in the meantime. No doubt some of the novelty of monitoring your power consumption will wear off, but the evidence from fuel-efficiency gauges in cars suggests that when something clearly shows people how to save money, they will follow its advice.

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Cochlear implants

Sounds like a good idea

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Biomedical technology: As cochlear implants improve, people who use older versions of the technology could face a difficult choice

Michael Chorost

YOU could call it the upgrader's dilemma. When it comes to buying a new mobile phone, computer or DVD player, should you buy the latest and greatest model now, since it offers new features that your old model lacks? Or should you wait for the next version of the technology that will be along next year and threatens to make today's gear seem suddenly old-fashioned? Now imagine that upgrading the item in question requires you to have surgery. That, in a nutshell, is the predicament that people with cochlear implants may soon be in.

As many as 120,000 people are now thought to have had their hearing restored by these revolutionary devices, which turn sound waves into electrical signals that stimulate the auditory nerves in the ear via an implanted electrode, and are perceived as sound. But several new developments promise big improvements to the technology in the coming years, so existing users could face tough choices as they have to decide whether to undergo surgery to reap the benefits.

In recent years cochlear implants have improved to the extent that users can even have telephone conversations, in which visual cues are not available to help with comprehension. But most of the improvements have been incremental, and they have involved tweaks to the signal-processing electronics that are worn over the ear, outside the body. Even people who received cochlear implants more than 20 years ago can benefit from these improvements without the need for surgery, says Bob Shannon, a senior researcher at the House Ear Institute, a non-profit research organisation in Los Angeles.

Attention is now turning to ways to improve the implanted part of the device, rather than the external components. The implant consists of several elements, including an induction coil that both receives the external signal and powers the device, a signal processor and the electrodes, which electrically stimulate the cochlea. All of this is hermetically sealed into a single unit that is designed to last a lifetime. "We design them to last 70 years," says Bas van Dijk, global research co-ordinator of sound coding at Cochlear, an Australian firm that is one of the three big makers of cochlear implants. (The other two are MED-EL of Austria and Advanced Bionics of America.) To benefit from an improvement to just one of these elements means replacing the whole implant. But the case for upgrading is likely to become more compelling as new types of electrode emerge that can greatly improve a person's hearing.

A word in your ear

Today's electrodes are bundles of wires that are fed into the snail-shaped cochlea of the inner ear and stimulate it in as many as 22 places. In theory, the more sites that are stimulated, the greater the range of frequencies that the user can perceive. Kensall Wise, a professor at the University of Michigan, has developed a prototype "thin film" electrode that can stimulate the cochlea in up to 128 different places. As well as improving sound quality for the wearer, this electrode could also make life easier for the surgeon who has to insert it. Its thin substrate is more flexible than existing electrodes and contains position sensors that will allow the surgeon to place it more accurately. This should also reduce the risk of damage to the cochlea during insertion.

It sounds great in theory, but Dr Shannon warns that its benefits have yet to be proven. It is questionable, he says, whether there is much benefit to going beyond 22 stimulation sites. "We may have already reached a practical limit," he says. As the stimulation sites become closer together, the risk increases that signals sent to adjacent ones will interfere with each other, a problem called "crosstalk".

A technique that tries to solve this problem is to use "virtual" stimulation sites. By sending signals to two adjacent sites at the same time, you can give the impression that an intermediate point is being stimulated. But even though this approach is now being used in some patients, so far there is no clinical evidence to show that it makes much difference to their hearing, says Dr Shannon. And not all implants allow several sites to be stimulated at once, so if the technique does work, many people will need to replace their implants to take advantage of it.

A far more radical option would be to switch to an entirely different kind of electrode. Today's electrodes stimulate the auditory nerve electrically, but they do so indirectly because they are separated from the auditory-nerve fibres by fluid and a bony wall. So John Middlebrooks, also at the University of Michigan, and Russell Snyder, at the University of California, San Francisco, have gone back to an idea first proposed in the 1970s: to penetrate the auditory nerve and stimulate the nerve fibres directly.

So far this has been tried only in animals, but the results suggest that getting nearer the nerve fibres activates them more precisely. This approach also lets you use smaller currents, which reduces crosstalk. Better still, these "intra-neural electrodes" can reach the nerve fibres that correspond to lower-frequency sounds. The cochlea is arranged "tonotopically" along its spiralled length, with nerves corresponding to high-frequency sounds around the outside, and lower-frequency sounds closer to the centre of the spiral. Today's electrodes do not reach very far into the spiral, which limits the perception of low frequencies.

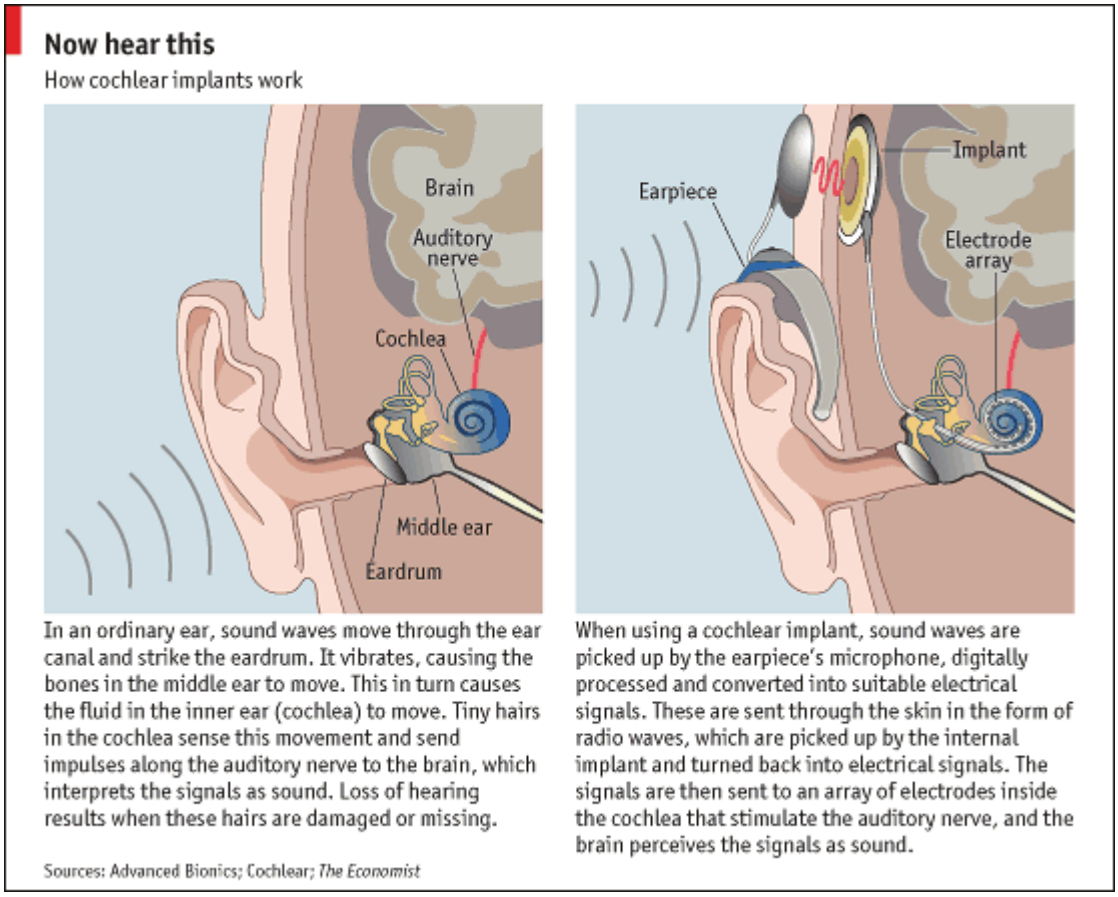
Tests of the intra-neural electrodes in cats suggest that they can stimulate frequencies as low as 600Hz—a bit more than an octave above middle C on the piano, and much lower than traditional electrodes. So patients equipped with such electrodes could potentially perceive a much wider range of frequencies, and with far greater precision, thereby improving their ability to understand speech and appreciate music.

"The case for upgrading will become more compelling as new types of electrode emerge."

There are even more exotic electrodes in the pipeline, including those that secrete drugs to encourage nerve growth and even ones that stimulate nerves using an infra-red laser. "All of the implant manufacturers are working on new electrode designs with high electrode counts," says Dr Shannon. For those who already have an implant, these developments suggest that they may want to consider an upgrade in the next few years.

What are the risks? The surgery itself is relatively safe and can now be performed without the need for an overnight stay in hospital. But one concern is the possible damage that could be caused to the cochlea. "Replacement of cochlear electrodes has turned out to be feasible, even when the new electrode is somewhat thicker than the original array," says Gerald Loeb, a professor of biomedical engineering at the University of Southern California in Los Angeles. (He was previously chief scientist at Advanced Bionics, and was one of the original developers of the cochlear implant.)

Even so, says Dr Loeb, replacing electrodes is not something that should be undertaken lightly, and is usually restricted to replacing failed implants. Hundreds of people have had their implants replaced over the years, and so far there is no evidence that removing the electrodes and replacing them causes problems. But if the trend of innovation with these devices continues, people may have several replacements over the course of their lives. Nobody knows what the long-term effects of that would be, says Dr van Dijk.


Now hear this
How cochlear implants work
Brain
Auditory nerve
Cochlea
Middle ear
Eardrum
In an ordinary ear, sound waves move through the ear canal and strike the eardrum. It vibrates, causing the bones in the middle ear to move. This in turn causes the fluid in the inner ear (cochlea) to move. Tiny hairs in the cochlea sense this movement and send impulses along the auditory nerve to the brain, which interprets the signals as sound. Loss of hearing results when these hairs are damaged or missing.
Earpiece
Implant
Electrode array
When using a cochlear implant, sound waves are picked up by the earpiece's microphone, digitally processed and converted into suitable electrical signals. These are sent through the skin in the form of radio waves, which are picked up by the internal implant and turned back into electrical signals. The signals are then sent to an array of electrodes inside the cochlea that stimulate the auditory nerve, and the brain perceives the signals as sound.
Sources: Advanced Bionics; Cochlear; The Economist

Someone who has given this a lot of thought is Michael Chorost (pictured in X-ray above the article), an expert on cochlear implants and the author of "Rebuilt: How Becoming Part Computer Made Me More Human", in which he describes going deaf and then regaining his hearing with a cochlear implant. He is one of the 3% of patients who have received cochlear implants in both ears. "It's a significant risk to undergo surgery to have a new implant, so the improvement would have to be substantial," he says.

But advances in sound quality may not be the only motivating factor. Future implants may also offer aesthetic and practical advantages. Otologics, based in Boulder, Colorado, is one of the firms developing a fully implantable cochlear implant that is completely contained within the body. (Cochlear has built a similar device.) One difficulty is that the microphone is inside the body, says José Bedoya, Otologics' president, which reduces the signal to about a tenth of its usual level. "It's like putting it in water," he says. In addition, the device has to filter out all the internal noises of the body, such as chewing, muscle movements, breathing and the heartbeat. Otologics believes it has solved these problems, however, and Mr Bedoya says a fully implantable cochlear implant will be ready for clinical trials within two years.

It's all in your head

"That is something I would seriously consider upgrading to, if the performance could also match my current device," says Mr Chorost. It is not just about how it looks, he says—there would be practical advantages, too. Having an earpiece that must be kept dry is very limiting, he says: "When you go swimming it is a solitary experience." Similarly, the earpiece has be taken off when going to sleep, he says.

A fully implanted device would have an internal battery that could be recharged by wearing a charger over the ear for a certain amount of time each day. A small inconvenience, given the freedom the device would offer? Perhaps. But an implanted battery brings with it additional considerations. Rechargeable batteries have limited lifespans and eventually need to be replaced, which means more surgery. Heart defibrillators provide a useful comparison. Patients fitted with these devices must have them replaced every five to ten years. But cochlear implants require less power, particularly if they use low-current intra-neural electrodes, and batteries are also improving. As a result, Mr Bedoya expects Otologics' devices to last perhaps 15-20 years.

A wave of innovation for cochlear-implant users is in the offing. And as well as improving the technology, researchers are also doing their best to minimise the need for surgery. For the likes of Mr Chorost, these

developments cannot come soon enough. He is very happy with his implants, he says, “but I think there is substantial room for improvement that has not yet been fully realised.” So what will he do when the new technology arrives? Is he daunted by the decisions he will face? Far from it, says Mr Chorost. Instead, he has come up with a practical rule of thumb. “I usually upgrade my computer when there's a new one with four times the memory and speed,” he says. He plans to apply the same guidelines when it comes to upgrading his hearing.

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Economist.com PRINT EDITION TECHNOLOGY QUARTERLY

Software bugtraps

Software that makes software better

Mar 6th 2008
From The Economist print edition

Illustration by Petra Stefankova

Computing: Programmers are using a variety of software tools to help them produce better code and keep bugs at bay

MODERN civilisation depends on software, so it needs to be as reliable as possible. But software is produced by humans, who are fallible. The programs they create are prone to crashes, bugs and security holes. What can be done? A good way to make more reliable software may, oddly enough, be to use even more software. Programmers are increasingly calling upon bug-squashing tools for help at various stages in the software-development process. Some of these tools help programmers to work together more effectively. Other tools scrutinise the resulting software, or its underlying source code, for problems. And still others help project managers put numbers on code quality, programmer productivity, and the cost-effectiveness of fixing particular bugs, so they can decide which bugs ought to be fixed first.

Things are improving, insists Daniel Sabbah, who started programming over 30 years ago and is now general manager of IBM's Rational Software unit, which makes software-development tools. Such tools "really have gotten much better over the years," he says, though their impact is difficult for ordinary users to see, in contrast with the far more obvious improvements in hardware performance, network speeds and storage capacity. Unlike whizzy new hardware, which is quickly adopted by manufacturers, new programming tools and techniques can take several years to percolate through the software industry, he says.

Not everyone agrees with Dr Sabbah's rosy view. Even if the tools are better, the number of bugs in newly written code has remained constant at around five per "function point", or feature, says Capers Jones of Software Productivity Research, a specialist consultancy. Worse, says Mr Jones, only about 85% of these bugs are eliminated before software is put into use. Dr Sabbah responds that such numbers do not show whether software is effective—bug-free code that does not do something useful, or does it two years too late, is not much help to a business, he says. And broader metrics suggest that things are, indeed, improving: the Standish Group, a consultancy that produces a biennial "CHAOS Report" on the state of software development, found that 35% of software projects started in 2006 were completed on time, on budget and did what they were supposed to, up from 16% in 1994; the proportion that failed outright fell from 31% to 19%.

Software as a social science

According to Jim Johnson, the chairman of the Standish Group, most of this improvement is the result of better project management, including the use of new tools and techniques that help programmers work

together. Indeed, there are those who argue that computer science is really a social science. Jonathan Pincus, an expert on software reliability who recently left Microsoft Research to become an independent consultant, has observed that "the key issues [in programming] relate to people and the way they communicate and organise themselves." Grady Booch of IBM Rational once tracked 50 developers for 24 hours, and found that only 30% of their time was spent coding—the rest was spent talking to other members of their team.

Programmers generally work together using a software platform called an "integrated development environment", which keeps track of different pieces of code and assembles them when required into a complete program, or "build", for testing. But many firms no longer have all their programmers and testers in the same place, or even in the same country. So it has become necessary to add features to programmer tools to allow coders to communicate with each other, request design changes, report problems and so on.

This field was pioneered by CollabNet, with the launch in 1999 of Subversion, a collaborative platform for programmers which now has more than 2.5m users. Subversion integrates with existing programming tools, including IBM's Eclipse, and offers features such as project-management features, discussion threads and support for quality-assurance engineers.

In 2007 IBM announced a similar effort called Jazz, which (as the name implies) is intended to foster creativity and collaboration among programmers. The idea is to provide a standardised way for existing programming tools to handle change requests, project updates and scheduling details for a particular project, not just code. As well as improving communication between far-flung programmers, centralising this information could also allow managers to track a project's progress more precisely.

High-level improvements in project management, and in the distribution and testing of new versions of a particular piece of software, are a useful, top-down way to improve the quality of software. But just as important are the low-level tools that scrutinise the actual code to look for bugs, conflicts, security holes and other potential problems. Such tools, which are now proliferating, can be divided into two main types: dynamic-analysis tools, which examine software as it runs to work out where breakdowns happen, and static-analysis tools, which look at code without actually running it to look for fundamental flaws.

Illustration by Petra Stefankova

Analyse this

To use a mechanical analogy, dynamic analysis is like watching a machine in operation, whereas static analysis is like poring over its blueprints. "Dynamic-analysis tools say, 'Well, you've got a problem on something over here,'" says David Grantges, a technical manager of application security at Verizon Business, a unit of the American telecoms giant. "Static-analysis tools say, 'You've got a problem on line 123.'" The two types are complementary, and Verizon, like most firms, uses both, he says.

Static analysis, being more difficult, is the younger of the two disciplines. In recent years several start-ups, including Klocwork, Fortify and Ounce Labs, have entered the field. Static analysis is best done as close as possible to the programmer, because the earlier a bug can be identified, the cheaper it is to fix.

(An industry rule of thumb is that a bug which costs $1 to fix on the programmer's desktop costs $100 to fix once it is incorporated into a build, and thousands of dollars if it is identified only after the software has been deployed in the field.)

In February Klocwork released Insight, a new version of its static-analysis tool that can run on a programmer's desktop every time code is submitted for a build. The advantage of this approach, says Gwyn Fisher, Klocwork's technology chief, is that programmers do not need to wait for a build in order to test their code. And when a whole team uses Insight, it can spot potential conflicts between code written by different programmers. Brian Chess, Fortify's chief scientist, says such tools can also spot mistakes that programmers are known to make routinely, such as allowing "buffer overflows" and "SQL injection", both of which can open up security holes.

"If new tools do not fit with existing ways of doing things, no one will use them."

Dynamic analysis involves running a chunk of code with a variety of test inputs to see if it performs as expected, and to make sure it does not do anything undesirable such as crashing, going into an endless loop or demanding more and more memory as it runs. This process can be automated to a certain extent, but guidance from the programmer or tester, in the form of test scripts, is usually required.

Both static and dynamic analysis have been around for a while, but encouraging more programmers to use them is not always easy. It is especially hard to spread these tools beyond large companies, which have the staff to support them. Veracode, a firm based in Burlington, Massachusetts, thinks the answer is to offer code testing as an online service. Chris Wysopal, the firm's co-founder and technology chief, says that his company's tool will broaden the market for software testing by giving smaller companies "a blood test" to check their code. At the moment, he says, "we're where network security was in 1995, when some people didn't even have a firewall."

A question of priorities

Another approach is to integrate testing tools more closely with existing programming tools. If testing tools do not fit neatly into a company's existing way of doing things, developers will not use them, notes Alberto Savoia at Agitar Software, the maker of a tool called Agitator which automatically produces test scripts for use in dynamic analysis. Seth Hallem, the co-founder of Coverity, which makes a static-analysis tool, expects greater integration between programming and testing tools in future.

But analysis tools that spot potential problems, useful though they are, can in turn cause new problems. John Viega of McAfee, a big security-software firm, used to run a start-up that sold a static-analysis tool called CodeAssure (which is now owned by Fortify). He says he did not realise how daunting such tools were to use until he tried selling them. "People would use our tool and find out that they had many reliability problems and many potential security problems, but the cost of researching and fixing them all was astronomical, so they would give up," he says.

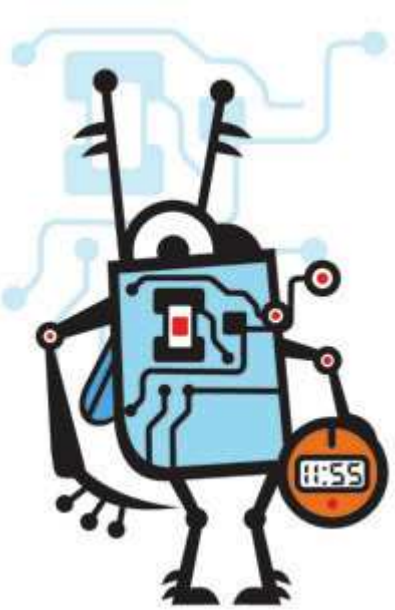
Not all bugs are worth fixing—but how can programmers decide which ones to concentrate on? Jack Danahy, technology chief of Ounce Labs, says the expertise required is the software equivalent of interpreting an MRI image. But his company is doing its best to automate the process, with a static-analysis tool that spots problems and estimates the risk associated with each one.

Illustration by Petra Stefankova

A similar risk-analysis approach is also being applied to software on a larger scale, through efforts to develop metrics for code quality and programmer productivity. Atlassian, an Australian developer of software tools, last year released Bamboo, which tracks trends in code over time, such as the number of bugs found. Veracode's analysis service has a code-scoring tool that gives grades to code. And Mr Savoia has developed a system to assess the quality of software written in Java, which he has jokingly named "change, risk, analysis and predictions", or CRAP. His software plug-in, which determines the "crappiness" of a particular piece of code, has been downloaded by hundreds of programmers. Given that programmers are paid a total of half a trillion dollars a year, Mr Savoia estimates, the industry needs better tools to assess the quality of their work.

To this end, America's National Institute of Standards and Technology

(NIST) is doing its best to create the software equivalent of the "generally accepted accounting principles" used in the financial world. Its Software Assurance Metrics and Tool Evaluation (SAMATE) project is intended to offer companies a way to quantify how much better their code will be if they adopt particular tools and programming languages.



Paul Black of NIST says its first report, on static-analysis tools, should be available in April. The purpose of the research is "to get away from the feeling that 'all software has bugs' and say 'it will cost this much time and this much money to make software of this kind of quality'," he says. Rather than trying to stamp out bugs altogether, in short, the future of "software that makes software better" may lie in working out where the pesticide can be most cost-effectively applied.

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Economist.com PRINT EDITION TECHNOLOGY QUARTERLY

Case history

In search of the perfect battery

Mar 6th 2008
From The Economist print edition

Getty Images

Energy technology: Researchers are desperate to find a modern-day philosopher's stone: the battery technology that will make electric cars practical. Here is a brief history of their quest

WHEN General Motors (GM) launched the EV1, a sleek electric vehicle, with much fanfare in 1996, it was supposed to herald a revolution: the start of the modern mass-production of electric cars. At the heart of the two-seater sat a massive 533kg lead-acid battery, providing the EV1 with a range of about 110km (70 miles). Many people who leased the car were enthusiastic, but its limited range, and the fact that it took many hours to recharge, among other reasons, convinced GM and other carmakers that had launched all-electric models to abandon their efforts a few years later.

Yet today about a dozen firms are once again developing all-electric or plug-in hybrid vehicles capable of running on batteries for short trips (and, in the case of plug-in hybrids, firing up an internal-combustion engine for longer trips). Toyota's popular Prius hybrid, by contrast, can travel less than a mile on battery power alone. Tesla Motors of San Carlos, California, recently delivered its first Roadster, an all-electric two-seater with a 450kg battery pack and a range of 350km (220 miles) between charges. And both Toyota and GM hope to start selling plug-in hybrids as soon as 2010.

So what has changed? Aside from growing concern about climate change and a surge in the oil price, the big difference is that battery technology is getting a lot better. Rechargeable lithium-ion batteries, which helped to make the mobile-phone revolution possible in the past decade, are now expected to power the increasing electrification of the car. "They are clearly the next step," says Mary Ann Wright, the boss of Johnson Controls-Saft Advanced Power Solutions, a joint venture that recently opened a factory in France to produce lithium-ion batteries for hybrid vehicles.

According to Menahem Anderman, a consultant based in California who specialises in the automotive-battery market, more money is being spent on research into lithium-ion batteries than all other battery chemistries combined. A big market awaits the firms that manage to adapt lithium-ion batteries for cars. Between now and 2015, Dr Anderman estimates, the worldwide market for hybrid-vehicle batteries will more than triple, to $2.3 billion. Lithium-ion batteries, the first of which should appear in hybrid cars in 2009, could make up as much as half of that, he predicts.

Compared with other types of rechargeable-battery chemistry, the lithium-ion approach has many advantages. Besides being light, it does not suffer from any memory effect, which is the loss in capacity when a battery is recharged without being fully depleted. Once in mass production, large-scale lithium-ion technology is expected to become cheaper than its closest rival, the nickel-metal-hydride battery, which is found in the Prius and most other hybrid cars.

Still, the success of the lithium-ion battery is not assured. Its biggest weakness is probably its tendency to become unstable if it is overheated, overcharged or punctured. In 2006 Sony, a Japanese electronics giant, had to recall several million laptop batteries because of a manufacturing defect that caused some batteries to burst into flames. A faulty car battery which contains many times more stored energy could trigger a huge explosion—something no car company could afford. Performance, durability and tight costs for cars are also much more stringent than for small electronic devices. So the quest is under way for the refinements and improvements that will bring lithium-ion batteries up to scratch—and lead to their presence in millions of cars.

Alessandro Volta, an Italian physicist, invented the first battery in 1800. Since then a lot of new types have been developed, though all are based on the same principle: they exploit chemical reactions between different materials to store and deliver electrical energy.

Back to battery basics

A battery is made up of one or more cells. Each cell consists of a negative electrode and a positive electrode kept apart by a separator soaked in a conductive electrolyte that allows ions, but not electrons, to travel between them. When a battery is connected to a load, a chemical reaction begins. As positively charged ions travel from the negative to the positive electrode through the electrolyte, a proportional number of negatively charged electrons must make the same journey through an external circuit, resulting in an electric current that does useful work.

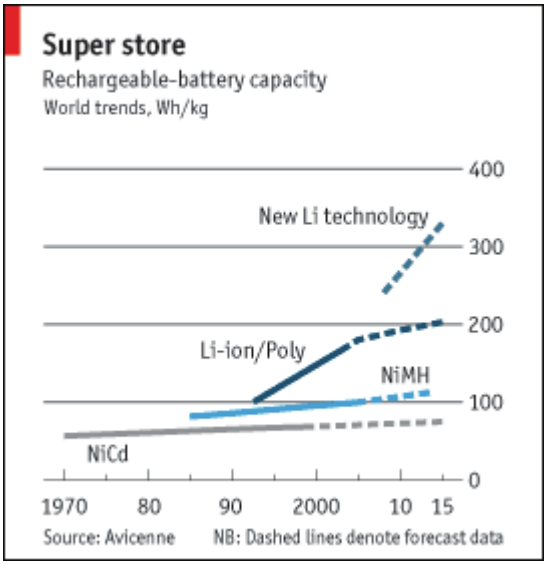
Some batteries are based on an underlying chemical reaction that can be reversed. Such rechargeable batteries have an advantage, because they can be restored to their charged state by reversing the direction of the current flow that occurred during discharging. They can thus be reused hundreds or thousands of times. According to Joe Iorillo, an analyst at the Freedonia Group, rechargeable batteries make up almost two-thirds of the world's $56 billion battery market. Four different chemical reactions dominate the industry—each of which has pros and cons when it comes to utility, durability, cost, safety and performance.

“Compared with computer chips, battery technology has improved very slowly over the years.”

The first rechargeable battery, the lead-acid battery, was invented in 1859 by Gaston Planté, a French physicist. The electrification of Europe and America in the late 19th century sparked the use of storage batteries for telegraphy, portable electric-lighting systems and back-up power. But the biggest market was probably electric cars. At the turn of the century battery-powered vehicles were a common sight on city streets, because they were quiet and did not emit any noxious fumes. But electric cars could not compete on range. In 1912 the electric self-starter, which replaced cranking by hand, meant that cars with internal-combustion engines left electric cars in the dust.

Nickel-cadmium cells came along around 1900 and were used in situations where more power was needed. As with lead-acid batteries, nickel-cadmium cells had a tendency to produce gases while in use, especially when being overcharged. In the late 1940s Georg Neumann, a German engineer, succeeded in fine-tuning the battery's chemistry to avoid this problem, making a sealed version possible. It started to become more widely available in the 1960s, powering devices such as electric razors and toothbrushes.

For most of the 20th century lead-acid and nickel-cadmium cells dominated the rechargeable-battery market, and both are still in use today. Although they cannot store as much energy for a given weight or volume as newer technologies, they can be extremely cost-effective. Small lead-acid battery packs provide short bursts of power to starter motors in virtually all cars; they are also used in large back-up power systems, and make up about half of the worldwide rechargeable-battery market. Nickel-cadmium batteries are used to provide emergency back-up power on planes and trains.



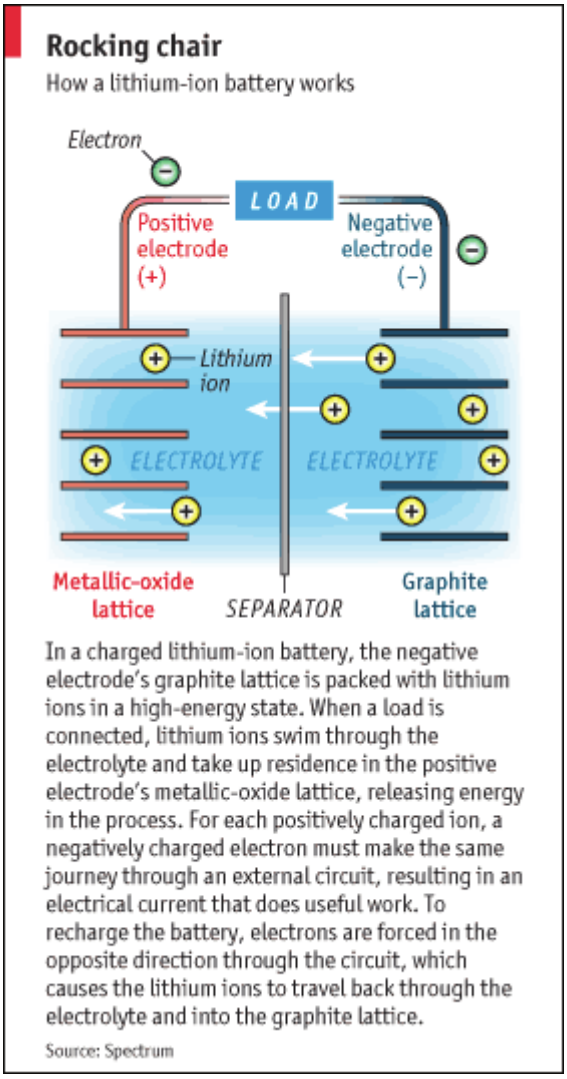
Time to change the batteries

In the past two decades two new rechargeable-battery types made their commercial debuts. Storing about twice as much energy as a lead-acid battery for a given weight, the nickel-metal-hydride battery appeared on the market in 1989. For much of the 1990s it was the battery of choice for powering portable electronic devices, displacing nickel-cadmium batteries in many applications. Toyota picked nickel-metal-hydride batteries for the new hybrid petrol-electric car it launched in 1997, the Prius.

Nickel-metal-hydride batteries evolved from the nickel-hydrogen batteries used to power satellites. Such batteries are expensive and bulky, since they require high-pressure hydrogen-storage tanks, but they offer high energy-density and last a long time, which makes them well suited for use in space. Nickel-metal-hydride batteries emerged as researchers looked for ways to store hydrogen in a more convenient form: within a hydrogen-absorbing metal alloy. Eventually Stanford Ovshinsky, an American inventor, and his company, now known as ECD Ovonics, succeeded in creating metal-hydride alloys with a disordered structure that improved performance.

Adapting the nickel-metal-hydride battery to the automotive environment was no small feat, since the way batteries have to work in hybrid cars is very different from the way they work in portable devices. Batteries in laptops and mobile phones are engineered to be discharged over the course of several hours or days, and they only need to last a couple of years. Hybrid-car batteries, on the other hand, are expected to work for eight to ten years and must endure hundreds of thousands of partial charge and discharge cycles as they absorb energy from regenerative braking or supply short bursts of power to aid in acceleration.

Lithium-ion batteries evolved from non-rechargeable lithium batteries, such as those used in watches and hearing aids. One reason lithium is particularly suitable for batteries is that it is the lightest metal, which means a lithium battery of a given weight can store more energy than one based on another metal (such as lead or nickel). Early rechargeable lithium batteries used pure lithium metal as the negative-electrode material, and an “intercalation” compound—a material with a lattice structure that could absorb lithium ions—as the positive electrode.


Rocking chair
How a lithium-ion battery works
Electron
LOAD
Positive electrode (+)
Negative electrode (–)
Lithium ion
ELECTROLYTE
ELECTROLYTE
Metallic-oxide lattice
SEPARATOR
Graphite lattice
In a charged lithium-ion battery, the negative electrode's graphite lattice is packed with lithium ions in a high-energy state. When a load is connected, lithium ions swim through the electrolyte and take up residence in the positive electrode's metallic-oxide lattice, releasing energy in the process. For each positively charged ion, a negatively charged electron must make the same journey through an external circuit, resulting in an electrical current that does useful work. To recharge the battery, electrons are forced in the opposite direction through the circuit, which causes the lithium ions to travel back through the electrolyte and into the graphite lattice.
Source: Spectrum

The problem with this design was that during recharging, the metallic lithium reformed unevenly at the negative electrode, creating spiky structures called "dendrites" that are unstable and reactive, and can pierce the separator and cause an explosion. So today's rechargeable lithium-ion batteries do not contain lithium in metallic form. Instead they use materials with lattice structures for both positive and negative electrodes. As the battery discharges, the lithium ions swim from the negative-electrode lattice to the positive one; during recharging, they swim back again. This to-and-fro approach is called a "rocking chair" design.

The first commercial lithium-ion battery, launched by Sony in 1991, was a rocking-chair design that used cobalt oxide for the positive electrode, and graphite (carbon) for the negative one. In the early 1990s, such batteries had an energy density of about 100 watt-hours per litre. Since then engineers have worked out ways to squeeze more than twice as much energy into a battery of the same size, in particular by reducing the width of the separator and increasing the amount of active electrode materials.

The high energy-density of lithium-ion batteries makes them the best technology for portable devices. According to Christophe Pillot of Avicenne Développement, a market-research firm based in Paris, they account for 70% of the $7 billion market for portable, rechargeable batteries. But not all lithium-ion batteries are alike. The host structures that accept lithium ions can be made using a variety of materials, explains Venkat Srinivasan, a scientist at America's Lawrence Berkeley National Laboratory. The combination of materials determines the characteristics of the battery, including its energy and power density, safety, longevity and cost. Because of this flexibility, researchers hope to develop new electrode materials that can increase the energy density of lithium-ion batteries by a factor of two or more in the future.

Hooked on lithium

The batteries commonly used in today's mobile phones and laptops still use cobalt oxide as the positive electrode. Such batteries are also starting to appear in cars, such as Tesla's Roadster. But since cobalt

oxide is so reactive and costly, most experts deem it unsuitable for widespread use in hybrid or electric vehicles.

So researchers are trying other approaches. Some firms, such as Compact Power, based in Troy, Michigan, are developing batteries in which the cobalt is replaced by manganese, a material that is less expensive and more stable at high temperatures. Unfortunately, batteries with manganese-based electrodes store slightly less energy than cobalt-based ones, and also tend to have a shorter life, as manganese starts to dissolve into the electrolyte. But blending manganese with other elements, such as nickel and cobalt, can reduce these problems, says Michael Thackeray, a senior scientist at America's Argonne National Laboratory who holds several patents in this area.

In 1997 John Goodenough and his colleagues at the University of Texas published a paper in which they suggested using a new material for the positive electrode: iron phosphate. It promised to be cheaper, safer and more environmentally friendly than cobalt oxide. There were just two problems: it had a lower energy-density than cobalt oxide and suffered from low conductivity, limiting the rate at which energy could be delivered and stored by the battery. So when Yet-Ming Chiang of the Massachusetts Institute of Technology and his colleagues published a paper in 2002 in which they claimed to have dramatically boosted the material's conductivity by doping it with aluminium, niobium and zirconium, other researchers were impressed—though the exact mechanism that causes the increase in performance has since become the subject of a heated debate.

Dr Chiang's team published another paper in 2004 in which they described a way to increase performance further. Using iron-phosphate particles less than 100 nanometres across—about 100 times smaller than usual—increases the surface area of the electrode and improves the battery's ability to store and deliver energy. But again, the exact mechanism involved is somewhat controversial.

The iron-phosphate technology is being commercialised by several companies, including A123 Systems, co-founded by Dr Chiang, and Phostech Lithium, a Canadian firm that has been granted exclusive rights to manufacture and sell the material based on Dr Goodenough's patents. At the moment the two rivals are competing in the market, but their fate may be decided in court, since they are fighting a patent-infringement battle.

The quest for the perfect battery

Johnson Controls and Saft, which launched a joint venture in 2006, are taking a different approach, in which the positive electrode is made using a nickel-cobalt-aluminium-oxide. John Searle, the company's boss, says batteries made using its approach can last about 15 years. In 2007 Saft announced that Daimler had selected its batteries for use in a hybrid Mercedes saloon, due to go on sale in 2009. Other materials being investigated for use in future lithium-ion batteries include tin alloys and silicon.

Corbis

Look, no exhaust pipe

At this point, it is hard to say which lithium-ion variation will prevail. Toyota, which is pursuing its own battery development with Matsushita, will not say which chemistry it favours. GM is also hedging its bets. The company is testing battery packs from both A123 Systems and Compact Power for the Chevy Volt (pictured), a forthcoming plug-in hybrid that will have an all-electric range of 40 miles and a small internal-combustion engine to recharge its battery when necessary. To ensure that the Volt's battery can always supply enough power and meet its targeted 10-year life-span, it will be kept between 30% and 80% charged at all times, says Roland Matthe of GM's energy-storage systems group.

GM hopes to start mass-production of the Volt in late 2010. That is ambitious, since the Volt's viability is dependent on the availability of a suitable battery technology. “It's either going to be a tremendous victory, or a terrible defeat,” says James George, a battery expert based in New Hampshire who has followed the industry for 45 years.

“We've still got a long way to go in terms of getting the ultimate battery,” says Dr Thackeray. Compared with computer chips, which have doubled in performance roughly every two years for decades, batteries have improved very slowly over their 200-year history. But high oil prices and concern over climate change mean there is now more of an incentive than ever for researchers to join the quest for better battery technologies. “It's going to be a journey”, says Ms Wright, “where we're going to be using the gas engine less and less.”

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Pico-projectors

Looking at the bigger picture

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Light Blue Optics/Microvision

Consumer electronics: How do you fit an enormous screen into a portable device? By using a tiny projector, of course

THE mere mention of the word "projector" conjures up memories for many people of dull lectures in darkened rooms, boring business presentations or tedious holiday slideshows. It is hard to imagine anyone getting excited about the technology. But some people think projectors could be the next cool piece of hardware to be incorporated into mobile phones and other portable devices. As pocket-sized gizmos have become both smaller and more capable in recent years, their tiny screens have become a growing irritation. That is the inevitable price that must be paid for portability, you may think—but now, it seems, there is another way, in the form of a new generation of miniature or "pico"-projector technologies that can display photos, videos, web pages and maps by beaming them onto a nearby wall or table.

"There's a multitude of mobile-phone users worldwide who are tired of squinting at two-inch displays on their devices. They want a bigger-screen experience," says Alexander Tokman, the boss of Microvision, a company based in Redmond, Washington, which is one of the pioneers of this new technology. Proponents of pico-projectors think they could find their way into phones, hand-held computers, media players, portable games consoles and laptops, all of which would be able to project a high-resolution, panoramic display onto a nearby wall.

The first pico-projectors will probably be small, stand-alone devices that can be plugged into any video source—much smaller and cheaper versions, in other words, of existing desktop projectors. This alone might open up a new market, since it would allow people to carry projectors around with them, such as business people who make lots of presentations or families who want to watch films in their holiday homes. So even before they become small enough to be incorporated into portable devices, pico-projectors are likely to shake up the existing market for projectors, which are also becoming an increasingly popular way to recreate the big-screen cinema experience at home.

It's all done with mirrors

Today's most advanced digital desktop projectors work in one of two ways. The first involves bouncing a powerful beam of light off an image formed on a reflective liquid-crystal-on-silicon (LCoS) display, a variant of the liquid-crystal displays used in laptops and mobile phones. The second, known as digital light processing (DLP), uses arrays of hundreds of thousands of tiny tilting mirrors, each of which can be tilted into one of two positions. Each mirror corresponds to a single picture element (pixel) in the projected image and acts as a beam-steering device, controlling whether that pixel is light or dark. Intermediate shades are created by tilting the mirror backwards and forwards thousands of times a second to vary the brightness of the pixel it is projecting. Complicated though they sound, both LCoS and DLP projectors can be built into devices that are not much bigger than a torch. In 2007 Texas

Instruments, the company that invented the DLP approach, demonstrated a prototype mobile-phone, albeit quite a chunky one by modern standards, with a built-in DLP projector.

But making projectors much smaller than this will require a switch to completely new technologies. One approach is to use a variation of the mirror-based design, in which the array of mirrors is replaced with a single pinhead-sized mirror, illuminated by laser diodes, which are very bright, compact and controllable light sources. By steering the mirror very precisely so that it projects one pixel at a time and illuminating it using red, green and blue laser diodes that are switched on and off millions of times a second, it is possible to project an entire image.

Microvision showed off its prototype projector, which works on this principle, at the Consumer Electronics Show in Las Vegas in January. It is about the size of a slim mobile phone, can be plugged into a phone, media-player or laptop, and produces images at a resolution of 848 by 480 pixels. One of the great benefits of using laser diodes, says Mr Tokman, is that they do not require any optics to focus the image. That means the image is always sharp, even when projected onto an uneven or curved surface. The prototype can project images as large as 2.5 metres across and can run for 1.5 hours on a single charge. But it is only meant as a demonstration of the technology, says Mr Tokman, and is simply a stepping stone towards embedding projectors into phones, he says.

Other companies are taking a similar approach. Symbol Technologies, based in San Jose, California, has built a prototype single-mirror device with a resolution of 1,024 by 678 pixels that is a similar size to Microvision's (about 70 cubic centimetres). That is still far too big to embed in a phone, but Symbol says it expects to be able to reduce the volume to about 8 cubic centimetres, or the size of a large sugar cube. Single-mirror projectors are expected to be small enough to fit into mobile phones by mid-2009.

It is unclear, however, whether the resolution of single-mirror devices can be pushed much higher. Increasing the number of pixels in the image requires the tiny, twitching mirror to move much faster: doubling the number of lines in each projected frame means there is only half as much time to scan along each one, says Michael Bove, an imaging expert at the Massachusetts Institute of Technology. One way round this problem might be to use rows of laser diodes, called vertical cavity surface-emitting lasers, to project many pixels at once. Another solution may be to make the mirror resonate, rather than getting it to scan out the projected image one line at a time in a zigzag fashion. Peter Schreiber at the Fraunhofer Institute of Applied Optics and Precision Engineering at Jena, in Germany, has demonstrated this approach and shown that if the mirror is oscillating in both the vertical and horizontal axes and at a high enough frequency—typically tens of thousands of times per second—it can be used to address each pixel in an image.

Microvision

Into another dimension

Another way to get round the limitations of moving mirrors is to do away with moving parts altogether, and use a technique called holographic diffraction. Laser light is shone onto a holographic medium which causes the beam to diffract, producing an image on a nearby surface. Lumio, a company based in Menlo Park, California, uses this approach with a fixed holographic pattern to project a "virtual keyboard" onto a tabletop. The image is projected from a small device sitting on a table, such as a mobile phone, and appears as a full-size QWERTY keyboard. A sensor works out when the user's fingers press the virtual keys. "It takes a few minutes of training," says Klony Lieberman, Lumio's chief scientist. A clicking sound provides feedback to indicate that a keypress has been registered.

It is not as efficient as an ordinary desktop keyboard, but it is certainly better than the tiny keyboards found on mobile phones, says Dr Lieberman. It could be used in other areas, too, he adds. Lumio has been talking to makers of kitchen appliances and medical equipment about using holographic projection interfaces for their products. The virtual buttons could be summoned by waving a hand at a motion sensor, and would then appear on an ordinary surface. This approach could be useful in situations where controls need to be kept clean, such as in hospitals. Lumio's projections are in a single colour and are fixed, since the holographic interference pattern is stored in a solid material and cannot be changed. That is fine for interfaces, but the same approach can also be tweaked to display moving images.

Light Blue Optics (LBO), a spin-out from Cambridge University, has built a full-colour video projector that uses holographic diffraction. The term "holographic" refers not to the projected image, but to the method of projection, says Chris Harris, the firm's boss. An ordinary fixed hologram is a diffraction pattern, captured in a fixed medium, that produces an image when illuminated with a laser. LBO's projector uses a reflective LCoS array to create a constantly varying diffraction pattern that is carefully calculated to produce the desired two-dimensional image when illuminated by red, green and blue lasers.

The resulting image is in focus at all distances from the projector, and the projector has no moving parts. The drawback of this approach is that the LCoS array takes up more space than a single mirror. But the nature of the technology means that the size of the array can be kept to a minimum. Because the array displays a diffraction pattern, not the actual image, the resolution of the projected image can be higher than that of the array, says Dr Harris. LBO's current prototype projects a 1,600-by-1,024-pixel image using an 864-by-480-pixel array. Dr Harris is confident that it can be shrunk to fit inside a mobile phone by 2010.

When squeezing a new feature into a portable device, however, size is not the only constraint. Minimising power consumption is just as important. Mr Tokman says the big mobile-phone manufacturers have set an upper limit on the power consumption of a projector of 1.5 watts. Given a typical phone battery, this would allow a projector to operate for about 2.5 hours, long enough to watch a film. Microvision's prototype consumes about three watts at the moment, but Mr Tokman expects this figure to fall as the internal circuitry is concentrated within a smaller number of dedicated chips.

Texas Instruments

LBO says reducing the power consumption of its projector to this level will not be a problem. It also reckons that its approach provides a brighter image for a given power consumption. Its projector operates at five lumens (a measure of brightness) per watt, compared with 3.5-5 lumens per watt for Microvision's technology, and the next generation of LBO's technology will run at 15-17 lumens per watt. Such gains are possible because the laser diodes only need to be switched on and off thousands of times a second with a holographic-diffraction projector, compared with millions of times per second for single-mirror projector designs, says Dr Harris.

The first commercial pico-projectors will probably appear in 2009-10, initially as stand-alone devices, and perhaps as plug-in accessories for mobile phones (rather like the plug-in cameras that predated full camera-phones). If they prove popular, projectors could then be incorporated into all kinds of devices. Will they be powered by DLP, single mirrors or holographic diffraction? Consumers will not be bothered by such details—they will be looking at the bigger picture.

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Internet wiretapping

Bugging the cloud

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Illustration by Adrian Johnson

Law enforcement: Governments want to extend wiretapping rules from phones to the internet, but doing so is hard

AMONG the many benefits of the internet's rise over the past decade has been the advent of free phone calls between its users—and much cheaper calls even for people who are not online, since ordinary calls can be partly routed over the internet. For people who work in foreign countries, have friends and relatives spread around the world, or simply have to make a lot of calls, this is great news. But for law-enforcement organisations who are used to being able to tap conventional telephone networks, it is causing increasingly painful headaches. Around the world, the emergence of voice-over-internet-protocol (VoIP) telephony is forcing authorities and communications firms into both conflict and co-operation.

Their shared problem is a fundamental one that results from the very nature of the internet. In the old world of telecoms, the path of a call was easy to follow: a continuous analogue or digital connection was established between the two parties, so it was easy for investigators to select a point somewhere along the line (at the telephone exchange nearest to the caller, for example) to tap the call.

On the internet things are very different. All information, whether e-mails, web pages, music downloads or voice calls, is chopped up into small packets of data and fired off across the network. The path one packet takes across the sprawling network may be different from the path of the next, and packets may arrive at the destination out of order, or not arrive at all. If intercepting a traditional phone call is like apprehending a single suspect at his home, eavesdropping on a VoIP call is more like trying to capture all the members of a gang as they cross a busy city in a fleet of separate vehicles. This technological shift is at the heart of the practical problems faced by law-enforcement officers and communications companies.

In America the law that governs what people in the trade call "lawful intercept" is the Communications Assistance for Law Enforcement Act (CALEA). It was introduced in 1994 when most internet connections were too slow to be used for voice traffic, and VoIP software was still in its infancy. CALEA imposed rules on traditional telecoms firms, requiring them to co-operate with wiretap requests. It was followed in 1995 by similar European legislation that has since been adopted and strengthened by national governments.

By 2004 American law enforcement agencies including the Federal Bureau of Investigation (FBI), the Drug Enforcement Administration and the Department of Justice were calling for new powers in response to the emergence of new forms of internet communication, such as VoIP. They successfully lobbied the Federal Communications Commission, the regulatory body that oversees the implementation of CALEA, to extend the rules to cover internet-access providers.

The move sparked an outcry from civil-liberties groups, who argued that CALEA was only ever intended to allow wiretapping of traditional telephones. Internet-access firms also lobbied against the changes, in part because buying interception equipment and establishing the administrative systems to deal with law-enforcement demands would cost them money. But all these objections were overruled on the grounds that extending CALEA to the internet was a necessary step to fight terrorism. All broadband-internet and VoIP providers were ordered to comply with the new rules by May 2007.

"Only America's NSA is thought to have the computing power to unscramble Skype packets."

The European Telecommunications Standards Institute (ETSI), a non-profit industry body, plays a key role in the implementation of lawful intercept in Europe. Although many national laws include provisions for internet wiretapping, ETSI is currently in the process of establishing the procedures that will allow the CALEA extension to be echoed in Europe.

For internet operators, the biggest gripe with CALEA and similar laws in other countries is that they are told what their lawful-intercept obligations are, but not how to meet them. For example, CALEA specifies that firms must be able to intercept calls in such a way that suspects cannot tell that they are under surveillance, but it does not say how to do this.

Easier said than done

That suspects can be alerted to a traditional wiretap by noise on the line is an old Hollywood cliché, but the problem was in fact solved long ago. Compliance is much more complicated for internet providers, because when the device on the end of the line is a computer rather than a telephone, any funny business can be detected by measuring the "latency" of the connection—in essence, the time taken for a single packet of data to travel from a local machine to a computer elsewhere on the internet. Inserting bugging equipment into the chain can increase the latency, and thus reveal to a technically sophisticated suspect that his connection is being tapped. Under CALEA, it is the internet company's fault if the investigators' cover is blown in this way.

As a result, American internet companies have agreed with regulators to leave lawful-intercept equipment permanently in place so that it can be activated on an individual's connection as required. The irony is that this may actually reduce the security of the network. Just as insisting that all door locks should open when a special government key is inserted, building a backdoor into everybody's connection may actually make it easier for malicious hackers, as well as legitimate investigators, to intercept traffic.

And even with this backdoor, the biggest problem facing eavesdroppers is the sheer volume of data coursing across the internet. Surveillance of a traditional telephone circuit can be carried out in real time by agents who merely have to switch on a tape recorder to collect evidence, and note down when relevant conversations take place. The quantity of information that can be recorded by a lawful-intercept operation on the internet, by contrast, is much greater. A typical two-megabit-per-second broadband connection is theoretically capable of downloading 650 gigabytes of data in a month.

Sorting through such enormous piles of potential evidence for something incriminating is a daunting task, so governments are keen to ensure that the extension of lawful intercept to the internet does not simply result in the indiscriminate hoovering up of masses of data that investigators are then unable to handle. The trick is deciding when and how to listen—but again, CALEA and its progeny in other countries are little help.

This has prompted telecoms firms and government agencies in both Europe and America to develop their own standards to decide how to target and extract relevant network traffic, and how the resulting data should be formatted and delivered to investigators. A similar process was necessary for traditional wiretapping, and there is a genuine desire among service providers to make it work on the internet. But the American rules

Illustration by Adrian Johnson

that tell internet firms how to conform with CALEA were published only weeks before the new law came into force last year, and many companies still do not comply with them.

Even with the backdoors in place and rules agreed on how and when traffic should be intercepted, there is another problem: encryption. Not all VoIP calls are encrypted: Vonage, a popular VoIP provider, does not encrypt the packets of data that carry its calls across the internet. Some companies do encrypt their VoIP traffic, but most of them (including telecoms firms and cable operators that offer VoIP services) are subject to CALEA or equivalent rules, so they must provide law-enforcement agencies with the necessary decryption keys if asked to do so.

And what about Skype?

The glaring exception to all this is Skype, the world's most popular VoIP system, with over 275m users. It is a "peer-to-peer" system in which calls are routed entirely over the public internet. The firm cannot provide investigators with access to suspects' calls, since it does not handle any of the traffic itself. And even if investigators intercept a Skype call by tapping a suspect's internet connection, its strong encryption means they are likely to be able to determine only the time and the duration of the call. Only America's National Security Agency is thought to have the raw computing power required to unscramble Skype packets, and its intelligence-gathering efforts are far removed from day-to-day law enforcement and the collection of evidence for prosecutions.

The FBI has been pressing Skype to build a special backdoor into its software for lawful-intercept purposes, but so far it is thought not to have complied. Skype's cryptic position on lawful intercept is that it "co-operates fully with all lawful requests from relevant authorities", but since it is based in Europe it is not subject to the recent extension to CALEA.

European authorities are also frustrated at their inability to tap Skype calls. In November the president of Germany's federal police complained that the encryption technology used by Skype makes it impossible for his officers to listen in on conversations. In response, legislators have proposed using a technique favoured by cyber-criminals to grab Skype decryption-keys directly from suspects' computers.

This would involve covertly installing "Trojan" software on a suspect's machine that could retrieve Skype keys and pass them back to investigators. A German federal court has ruled that data gathered in this way would be inadmissible as evidence, but legislators responded by drafting a change in the law that would allow it, citing "a serious and scandalous hole in our information that has arisen through technical changes in recent years".

Similar concerns have been expressed in Britain. In his submission as part of an annual assessment of the effectiveness of the British security services, the director of GCHQ, the government's communications headquarters, told members of parliament that internet communication represented "the biggest change in telecoms technology since the invention of the telephone. It is a complete revolution." The difficulty of the task was underlined by the evidence from the head of MI5, Britain's domestic intelligence service, though his full comments are censored in the public version of the report.

As with other internet technologies and real-world rules, the authorities will probably always be behind in their bid to eavesdrop on criminals, and the legitimate desire for privacy and security will continue to come into conflict with the needs of law enforcement. So far, evidence from intercepted VoIP calls has not been used in court; e-mails are often presented as evidence, but they are easily retrieved direct from the hard disks of the sender or receiver, or from corporate back-up tapes, rather than being intercepted in transit. But once intercepted traffic is presented as evidence, it is sure to reignite the debate over civil liberties and internet wiretapping.

Meanwhile, the technology continues to evolve. Phil Zimmerman, the programmer who developed "Pretty Good Privacy", a popular and highly secure encryption algorithm, is now working on a free VoIP product called Zfone. Its scrambling system promises to be even more opaque to wiretaps than existing encryption techniques. That will be good for anyone who wishes to keep their communications secret—

whatever their motives. But it will be more bad news for any investigators trying to listen in.

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Brain scan

From palmtops to brain cells

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Jeff Hawkins, best known as the creator of the Palm Pilot, hopes his new theory will lead to more brain-like computer software

Illustration by Andy Potts

THE lecture theatre at Rensselaer Polytechnic, America's oldest engineering school, is packed as Jeff Hawkins takes the stage, clad in black jeans and an olive shirt. Many of the students and professors are carrying mobile devices descended from his most famous creations: the Palm Pilot, a pioneering hand-held computer, and the Handspring Visor, an early smart-phone. A few people are holding copies of his book, "On Intelligence", which outlines his new theory about the brain. Known for the devices that fit into people's hands, Mr Hawkins is now concentrating on the things that go on inside their heads.

As he explains his ideas to a rapt audience of engineers, Mr Hawkins resembles a Dr Seuss character come to life. His frame is tall and lanky, his voice has a confident, engaging ring to it, and his eyes are wide with enthusiasm. When he gets going, his long fingers punctuate his statements and he starts to talk so fast that he is almost unintelligible. The title of his speech—"Hierarchical temporary memory: how a new theory of the neocortex may lead to truly intelligent machines"—encapsulates his ambition. Mr Hawkins says he chose the name "hierarchical temporary memory" for his new theory because he wanted it to sound boring, to avoid the perception that he is hyping the concept. His aim is to get computers to work in a more brain-like way.

The reluctant entrepreneur

It is quite a leap from hand-held computers to brain research, but over the course of his career Mr Hawkins has made several unexpected leaps—many of which seem to have surprised him as much as anyone else. Indeed, Mr Hawkins may be the most reluctant entrepreneur in Silicon Valley. He thinks it is a pain to start companies, though his latest, Numenta, is his third. He certainly did not set out to spend his whole career working in the technology industry. "I'm not a technology guy," he says. "There's no technology in my house. I hate it." His mother videotapes television programmes for him, because he refuses to learn to use anything as clunky as a video-recorder.

Mr Hawkins's fascination with the brain began right after he graduated from Cornell University in 1979. While working at various technology firms, including Grid Computing, the maker of the first real laptop computer, he became interested in the use of pattern recognition to enable computers to recognise speech and text. In 1986 he enrolled at the University of California, Berkeley, in order to pursue his interest in machine intelligence. But when he submitted his thesis proposal, he was told that there were no labs on the campus doing the kind of work he wanted to do. Mr Hawkins ended up going back to Grid, where he developed the software for the GridPad, the first computer with a pen-based interface, which was launched in 1989.

Grid had no interest in making a mass-market computer for consumers, however, so Mr Hawkins left the company and founded Palm. His plan was to make a simple, mobile computer that used a pen interface. If it did well, he would then be able to go back to doing what he was really interested in: brain research. In the event the Palm Pilot was the only product that survived the "pen computing" bubble of the 1990s. It combined software and hardware in a package that actually worked, whereas Apple's Newton, Hewlett-

Packard's 95LX and many others failed. “They didn't have the right balance of usability, size and battery life,” says Ken Dulaney, an analyst at Gartner, who has known Mr Hawkins since his early days at Grid. But Mr Hawkins figured out the balance, says Mr Dulaney.

Disagreements over Palm's strategy prompted Mr Hawkins to leave in 1998 and start a new company, Handspring, with Donna Dubinsky, whom he had hired as chief executive of Palm. The new firm devised one of the first effective smart-phones, the Treo. Palm and Handspring eventually merged in 2003. By this time Mr Hawkins had fulfilled his promise to himself to use the proceeds from his hand-held computing adventures to bankroll his interest in brain research.

In 2002 he founded the Redwood Neuroscience Institute, a non-profit research outfit based in Menlo Park, California. There he led a small group of researchers who worked at the intersection of neuroscience and computer science, and developed his “hierarchical temporary memory” model of the brain. Mr Hawkins outlined the theory in his book, which was published in 2004. He then decided that the best way for him to promote his ideas was to found a new company, Numenta, for which he once again teamed up with Ms Dubinsky. At the same time, he donated his research outfit to the University of California, Berkeley, where it is now known as the Redwood Centre for Theoretical Neuroscience. Having oscillated between industry and academia, Mr Hawkins seems finally to have found the right vehicle with which to pursue his interests. (He still serves as an adviser to Palm one or two days a week.)

Looking for patterns

Throughout his career Mr Hawkins has combined an ability to make difficult things simple with a determination to do things his own way. He has an intuition for what will work and sticks to it fiercely, says Ms Dubinsky. When devising the Palm Pilot he made a balsa-wood mock-up and carried it around for several weeks, using it as though it were a real device, in order to evaluate the design. (The final product ended up being almost identical to his wooden model.)

And instead of using full-blown handwriting recognition to convert words into text, Mr Hawkins suggested a simple set of symbols, based largely on the alphabet, that he called Graffiti. Before there was even a prototype of the Graffiti software, Mr Hawkins would sit with a pen and paper and jot things down using Graffiti's symbols, one on top of the other. “People would ask me, ‘What is he doing?’,” says Ms. Dubinsky. “I'd say, ‘Shhh, he's inventing.’” But once the company got the software running, it proved to be far more practical than traditional handwriting-recognition systems.

“His new model could result in more brain-like software, in fields from robotics to video games.”

In neuroscience, too, Mr Hawkins is going his own way. Most neuroscientists are experimentalists, and focus on a small part of the brain. Mr Hawkins, by contrast, is interested in the big picture of how the brain works. In essence, his theory holds that the brain processes information using pattern-recognition “nodes” arranged hierarchically, much like the organogram of a large company. Over time, nodes at each level in the hierarchy identify and learn frequently observed patterns. When a known pattern triggers a node, it sends a signal to the next level up in the hierarchy. As multiple signals move up the hierarchy, nodes at higher levels learn to identify and predict more complex patterns. Predictions are passed down the hierarchy so that mismatches between predicted and observed patterns can be recognised.

It all resembles a very computer-like model of the brain, but it is based on observations of the physical structure of the neocortex, and builds upon the work of conventional neuroscientists. Mr Hawkins has now turned his model into software, in the form of the Numenta Platform for Intelligent Computing, a free software toolkit. He hopes it will form the basis for software that works in a more brain-like way, in fields including robotics, computer vision, data analysis and video games. Eight corporate partners are testing the platform; one of them, Electronic Arts, a big video-games publisher, has staged a competition to encourage game programmers to try it out, in the hope of producing more realistic in-game characters. Numenta may be off to a slow start, but that is fine with Mr Hawkins, who is 50, and has told friends that working out the details of his theory could take the rest of his life.

His ideas have generally been respectfully received by those in the field. Mr Hawkins was invited to give a keynote address at the Society for Neuroscience conference in November. Geoffrey Hinton, a professor of computer science at the University of Toronto and an expert on the modelling of memory and perception using neural networks, says Mr Hawkins “has got very good intuitions, and in broad terms he's right.” But, he says, Mr Hawkins is underestimating just how difficult it is to create software recipes, or algorithms, that can mimic intelligence.

Oddly enough, Dileep George, a computer scientist who co-founded Numenta with Mr Hawkins, does not disagree. "Jeff does not have an algorithmic background," he says, which can lead to intense discussions as he insists that something should quickly work elegantly. But as frustrating as it is for him when Mr Hawkins simply asserts that some algorithm should be a certain way, says Mr George, "I have come to respect these hunches, because so many have turned out to be correct."

Yann LeCun, a computer scientist at New York University, likens Mr Hawkins, with his intuitive approach, to some of the pioneers of aviation. "You had people tinkering around developing the laws of aerodynamics, and then you had people like the Wright brothers, who were building airplanes," he says. Mr Hawkins, he suggests, "is trying to build an airplane"—though so far it is only a model plane, jokes Dr LeCun. Whether it will fly is an open question. But if nothing else, Mr Hawkins has managed to reinvigorate this area of research, says Dr LeCun. "We're nowhere near building intelligent machines, and in the past ten years the machine-learning community has lost its ambition to build them," he says. In particular, Mr Hawkins has galvanised younger researchers—his speech at Rensselaer Polytechnic came about after a 24-year-old doctoral student, Oswaldo Sanchez, pestered the chair of his department to invite Mr Hawkins.

Mr Hawkins is not worried about whether his theory is exactly correct in its current form. Some of the computers he has devised over the years, such as the Zoomer (the predecessor to the Palm Pilot) and the Foleo (a laptop-shaped add-on for a smart-phone) have been flops, and he recognises the importance of learning through trial and error. He even decided that Graffiti was the wrong approach eventually, and did not include it in the Treo smart-phone. As ever, he is looking at the bigger picture. "I think this is going to be one of largest areas of technology in the next 50 years," he says.

Appropriately for someone so interested in pattern recognition, Mr Hawkins's own career has a clear pattern of its own. He has repeatedly pioneered new ideas and products, opening up markets into which others have then charged, often with more sustained commercial success than Mr Hawkins himself. (Having pioneered the smart-phone, for example, Palm is now struggling in the face of competition from Nokia, Apple, Research in Motion, Samsung and others.) Perhaps his hunch about brain-like computers will prove to be the next example.

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Offer to readers

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Japan's Mittelstand

Under pressure

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Small firms, the bedrock of Japanese industrial might, face hard times

THE bouquet of flowers at Densho, a 150-person company one hour's drive from Tokyo, is the pride of Iwao Sumoge, the *shacho*, or president. The firm specialises in cleaning parts of machines that make semiconductors, in which a speck of dust is intolerable. It also thins the glass displays for mobile phones by using a special chemical process, rather than grinding. It provides these intricate services to some of Japan's biggest corporate behemoths.

The flowers were sent by a business partner to congratulate Densho after it registered to be treated as a medium-sized enterprise, rather than a small business. The company, founded two decades ago, is toying with the idea of a public listing—not to raise money, but because it is often done in Japan to symbolise a firm's maturity.

The success of Densho, and of hundreds of small businesses like it across Japan, is underappreciated. Japan's big companies—Toyota, Canon, Sony and so on—are well known. But their success rests on the foundation provided by Japan's small and medium-sized firms (those known in Germany as the *Mittelstand*).

Small and medium-sized enterprises (SMEs), defined in the manufacturing sector as those having capital below ¥300m ($3m) or fewer than 300 employees, represent 99.7% of companies in Japan. They employ around 70% of the workforce and account for half of manufacturing by value. Many of them are found in clusters, in areas such as Tokyo's Ota ward and the city of Higashi-osaka. They specialise in fields such as electronics manufacturing, precision engineering and fine chemicals. A few date back centuries.

As in Germany, many of these anonymous, often family-run small companies boast world-class technology that enables big firms to succeed. But in Japan, firms like Densho are becoming the exception rather than the rule. There is a huge spectrum of small firms, notes Atsushi Seike, an economist at Keio University. Though some are thriving, many are miserable, he says. Indeed, business sentiment among SMEs is at a five-year low, for a number of reasons.

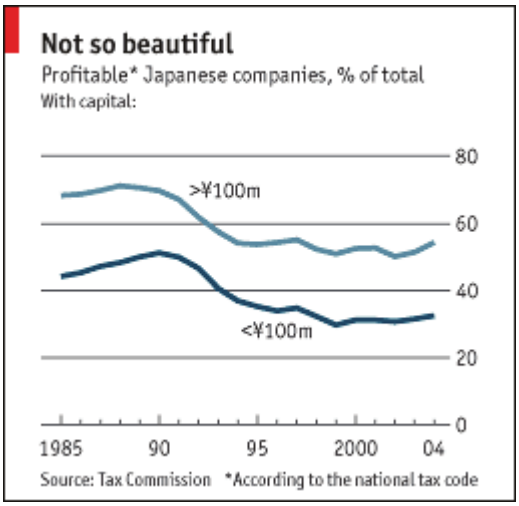
In recent years big firms have put pressure on their suppliers, forcing them to cut prices and accept lower margins. Most small firms find it difficult to refuse, because they rely on a single, anchor company for much of their business, observes Takatoshi Miura of the SME Agency at Japan's Ministry of Economy,

Trade and Industry (METI). Much of the profit made by Japan's big exporters since the economy rebounded in 2002 has come from squeezing their smaller brethren.

Wages at big companies increased slightly last year but dipped at small firms. And the productivity of SMEs in the manufacturing sector (defined as value added per employee) is half that of large companies—and even worse in non-manufacturing industries. Overall, Japanese firms are 30% less productive than their American counterparts, notes Hiroko Ota, the minister of economy. Meanwhile, Japan's manufacturing industry is under increasing pressure from Chinese firms offering improving quality, large volumes and low prices. Rising energy and transport costs and the fragility of the Japanese economy only add to the pain.

Accordingly, Japan's *Mittelstand* is struggling. Only about one-third of firms with less than ¥100m in capital are profitable, according to the tax agency, compared with half of larger firms (see chart). Admittedly, creative accounting—padding expenses, and generous tax deductions for research and development—exaggerates the bad news somewhat. But it is still bad.

Weak companies tend to have been sustained by easy bank loans. Politicians put huge pressure on small and regional banks to lend money on generous terms. Around 70% of SMEs applied for loans without any collateral or guarantee, according to a survey carried out in 2003 by the Tokyo Chamber of Commerce and Industry. Things have been tightened up a bit since then, but loans are still considered an acceptable substitute for providing unemployment assistance, says a government economist. Because the bankruptcy rate in Japan is low and takeovers are rare, bad companies do not go away and good companies can only grow organically. The resulting overcapacity hurts everyone, says Laurent Halmos of CLSA, a brokerage.



The government has recently implemented a number of measures to help small firms. In December it said it would provide subsidies to compensate for rising energy prices, and would make it even easier for small firms to get loans. In the same month METI proposed spending $20m to help SMEs become more efficient by adopting software for accounting, human resources and supply-chain management.

None of this will magically transform the fortunes of Japan's ailing small firms, however. The success stories are those, like Densho, that combine technical acumen with innovative business practices to carve out niches. Another example is Nabeya Bi-tech Kaisha (NBK), a medium-sized firm in Gifu, central Japan, which makes high-precision machine parts, from large pulleys to tiny shaft-couplings.

Instead of churning out standardised products in high volumes and at low prices, it concentrates on expensive, customised components made in small quantities—a natural evolution from its origins in 1560 as a foundry making pots, temple bells and lanterns for the imperial family. "We want to do business like a sushi bar: the customer is right in front of you, orders different things, and a highly skilled artisan makes it right away," says Masahide Satoh, a senior manager at the firm.

Many small firms now face the looming problem of succession. Though some are much older, a lot of Japan's SMEs sprung up in the post-war period, following the breakdown of the former business order. Their bosses, now in their 70s, are ready to hand over the reins. The strongest firms are selling up—once their owners find buyers willing to guarantee the welfare of their staff. As for the laggards, some business leaders are unsympathetic. "If they are not very good, they deserve to go away," says Mr Sumoge of Densho, revealing a flash of his samurai ancestry. Eventually the weaker firms will go bust or be taken over. But like everything in Japan, it will happen slowly.

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Porsche and VW

In the driving seat

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A European automotive titan is on its way

FERDINAND PIËCH is two steps closer to realising his dream: the creation of a new European automotive giant. On March 3rd he and his colleagues on the supervisory board of Porsche Automobil Holding gave the go-ahead for Porsche, a maker of sports cars, to buy another 20% of Volkswagen (VW), Europe's biggest carmaker. Porsche already owns 31% of VW, so this will give it a controlling majority. A few hours earlier VW itself, of which Mr Piëch is chairman, announced a takeover of Scania, a Swedish truckmaker, paying €2.9 billion ($4.4 billion) to increase its stake from 31% to 68.6%.

The resulting concern, under the umbrella of Porsche Holding, will have sales of around €120 billion and will sell 6.7m vehicles a year. Its biggest markets will be Europe, Asia and South America; cracking North America may be a job for the 70-year-old Mr Piëch's successor. MAN, a truckmaker in which VW owns a 29.9% stake, may be rolled in later.

Porsche has plenty of cash. In the 18 months to January 31st it earned €4.5 billion in windfall profits from options it bought on VW shares. It has also lined up €10 billion in credit (roughly the amount needed to buy 20% of VW) from friendly banks. A remaining obstacle is Germany's VW Law, which limits any shareholder's voting rights to 20%. Last October the European Court ordered Germany to abolish it. The new draft of the law is not exactly capital-friendly: Brigitte Zypries, Germany's justice minister, wants Lower Saxony, which has a 20% stake in VW, to retain the right to veto big commercial decisions, such as relocating factories.

But even that clause is not likely to deter Mr Piëch and Wendelin Wiedeking, Porsche's tough-minded chief executive. Mr Wiedeking has not disguised the fact that he wants to change VW's culture from a socialised, semi-protected concern to a capital-efficient machine like Porsche. That means putting an end to the cosy relations between VW's management and workforce.

This week's news paves the way for Porsche's takeover of VW and puts an end to the long-running tussle between VW, MAN and Scania. But the balance of power between Mr Piëch, who holds 46.3% of Porsche Holding, the Porsche family, which owns 53.7%, and Mr Wiedeking remains unclear. So there is still plenty of scope for drama.

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Cars

Ford's European arm lends a hand

Mar 6th 2008 | GENEVA
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Why the new Fiesta is so important

AFP

A lot is riding on the new Fiesta

Get article background

OF THE many new cars revealed for the first time at this year's Geneva motor show, none is more important to its maker than Ford's new Fiesta. The supermini is the first expression of what Alan Mulally, the Boeing executive hired in 2006 to rescue the embattled carmaker from looming bankruptcy, calls the "One Ford" strategy.

That does not just mean off-loading other brands such as Jaguar, Land Rover and, maybe, Volvo. Mr Mulally wants Ford to stop creating model ranges that differ wildly from one region to another. He wants to use Ford's scale to create vehicles that, with small adjustments to cater for local tastes, can be sold as easily in North America and Asia as in Europe. By exploiting the best of Ford's development and design efforts, regardless of location, he hopes to end the expensive duplication of effort, freeing up money to spend on new vehicles and strengthening the Ford brand.

The key to this approach is Ford's European operation, which was responsible for designing the Fiesta. With only very minor changes to its looks, the Fiesta will be made in China from 2009 and in America from 2010. Mr Mulally is frustrated that making other European models, such as the S-Max, a groundbreaking sporty people-carrier, in America will have to wait until today's models are replaced. That is because cars developed for Europe need time and money spent on them if they are to comply with American regulations.

Ford Europe is on a roll, made all the more extraordinary by the problems of its parent. Last year the company's North American automotive business lost $3.5 billion, and sales of its "domestic brands" fell by 12.7%, allowing Toyota to claim second place in the market for the first time. By contrast, Ford Europe made a record number of vehicles, increased sales by 5.4% and claimed a larger share of a market in which it has to compete head-on with Germany's premium brands.

Ford almost lost the art of making good passenger cars in its home market because of its shortsighted concentration on pick-ups and sport-utility vehicles, but in Europe it has steadily built a reputation for product excellence. With the addition of the new Fiesta, its range of cars can fairly claim to be the best, or a match for the best, in every segment of the market in which they compete.

It is an achievement that has its origins in the early 1990s, when the company's European management realised that building cars that were reliable and good value for money was no longer enough. Under the

leadership of Richard Parry-Jones, a legendary development engineer who retired last year, Ford set out to improve the dynamics—the combination of ride, handling, steering and so on—of every car it made. This started with the first Mondeo, launched in 1993, and reached its apotheosis five years later with the Focus. Its pricey independent rear-suspension set-up meant it far outclassed its rivals.

It is now taken for granted that Ford Europe's products will have fine dynamics. But in the past couple of years the cars have begun to look the part, with higher-quality interiors and more radical exterior styling than the staid look for which Ford had been known. The man responsible is Martin Smith, the head of design, who was hired in 2004 with a brief from Lewis Booth, the chairman of Ford Europe, to create "drop-dead gorgeous cars".

Previous attempts to build "world cars" that could be sold everywhere have foundered, in part, on the belief that their styling had to be bland and inoffensive in order to be acceptable to different cultures. Until the new Fiesta, Ford did not know whether Mr Smith's "kinetic" design language would be understood and liked outside Europe. It need not have worried. Thanks to the globalisation of fashion and design, the iPod generation ("design progressives", Mr Smith calls them) clicked with the Fiesta wherever it was shown.

Jim Farley, Ford's head of global marketing, has no doubt about the importance of the Fiesta, especially in America. "When is the last time you saw a manufacturer bring a small car to the US and ask customers to pay a premium?" he asks. The Fiesta, he says, will be entering the biggest market segment in the world—one in which the cars used to be commodities, but are now the first step on the ladder to buying a firm's bigger, more expensive models.

There is no reason why some of those pricier cars should not also come from Ford's confident European arm. European cars, such as the latest Mondeo, have been getting bigger just as high fuel prices are prompting more Americans to think smaller—another sign of tastes converging, and another argument in support of Mr Mulally's "One Ford" focus.

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European trademarks

A money mountain

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What should be done with a growing pile of public money?

THE European Union has known its share of surpluses: wine lakes, butter mountains and so on. But an unwanted pile of money is a first. The total stands at around €300m ($460m) and is going up by over €1m a week. The pile is accumulating in Alicante, at the European trademark agency, OHIM, and its existence is revealed in the agency's latest annual report, published on March 6th.

A non-profit body, OHIM has the monopoly to grant trademarks that offer intellectual-property protection across the EU. These have been granted to hundreds of thousands of firms around the world, despite costing more and taking longer to obtain than local trademarks. This success has generated more in fees than the agency needs to cover its costs. (OHIM offers a streamlined, paperless operation and does much of its business online, keeping costs down and speeding up the processing of applications.)

Today a European trademark costs €1,600, but Wubbo de Boer, head of OHIM, thinks that should be cut to €1,000. Fees fell by 25% in 2005 and last year, after much angry debate among ministers from member states who sit on its governing body, another cut was agreed on in principle. But the European Commission seems to be blocking it.

The trouble is that OHIM is ruffling the feathers of some national trademark offices, with which it competes. National governments use trademarks as a form of tax, and lower rates for the European version would undercut them.

Until recently there was a sleepy coexistence between the OHIM and its national counterparts. But now that more and more companies are opting for European trademarks rather than national ones, a number of national governments, mainly in new EU member states, have been lobbying for OHIM's fees to stay the same and for its surplus to be shared out among them.

Mr de Boer simply wants to cut prices, so that firms do not have to pay any more than necessary for intellectual-property protection. "I don't want to be a tax collector," he says—unlike the national offices. He thinks some of the surplus could be held as a reserve, and some could be used to fund joint technology projects with national bodies; but most should be handed over to Brussels, while charges are reduced to stop a surplus from ever building up again.

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European energy

Neelie's deal

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Why E.ON made an unexpected U-turn

WULF BERNOTAT, the chief executive of E.ON, Germany's biggest power company, used to be one of the staunchest critics of the "unbundling" of energy production and transmission assets advocated by the European Commission. But on February 28th he made a surprising U-turn. As EU energy ministers met in Brussels to discuss unbundling, E.ON said it would sell its German electricity-transmission grid, plus about 20% of its local generating capacity, in exchange for an end to the antitrust investigation of E.ON being carried out by Neelie Kroes, the EU's competition commissioner.

This does not mean that Mr Bernotat has become a sudden believer in a fully liberalised energy market, as proposed by the EU. His company was facing antitrust fines of several billion euros and lawsuits from disgruntled German consumers. So he decided it was better to irritate his government and upset his rivals than to continue fighting with the mighty Ms Kroes.

This is a big blow for the German government, which has been leading the campaign against EU plans to make the energy market more competitive by breaking up vertically integrated energy giants such as France's EDF and Gaz de France, and Germany's E.ON and RWE. Germany, together with France, Austria, Bulgaria, Greece, Luxembourg, Latvia and Slovakia, argues that Europe needs power giants that can stand up to Russia's Gazprom and other big producers.

The German-led campaign had been going rather well. But after E.ON's surprise move, its rivals are weighing their options. Vattenfall Europe, the German subsidiary of Sweden's Vattenfall, says it may consider selling its grid; RWE insists it will not. But both may decide to sell if they are threatened with huge antitrust fines.

E.ON's deal with the commission could prove a blessing for the company, which this week reported a 10% increase in operating profit in 2007 compared with the previous year. Analysts expect E.ON to sell the Thüga group and its stakes in 120 municipal-power companies, which could fetch €3 billion-5 billion ($4.6 billion-7.6 billion), in addition to the electricity grid, which could go for €2 billion. "This would mean a move out of low-growth, very regulated assets to focus on mid-stream and up-stream," says Lueder Schumacher, an analyst at Dresdner Kleinwort, an investment bank. That could, he suggests, boost the value of E.ON's shares, which are trading at a discount to those of its peers. E.ON could use the resulting war-chest for something big, such as a takeover of Iberdrola, a Spanish electricity giant.

The EU is pushing ahead with its plans and wants an agreement by the summer. It has little time to lose. France, one of the staunchest opponents of unbundling, is taking over the EU presidency in July. Next year the commission itself is up for reappointment, which tends to mean that EU legislation makes little progress. And governments take years to implement new directives. Colette Lewiner of Capgemini, a consultancy, predicts a compromise, such as full unbundling of electricity grids and arm's-length ownership of gas networks.

But Ms Kroes is determined to push for a truly free market by using her department's antitrust powers. She can fine groups up to 10% of their total annual sales (some €7 billion in E.ON's case). EDF and Belgium's Electrabel are also under investigation. It is piecemeal progress, but the threat of a big fine seems to focus minds more clearly than any amount of talk about lofty legislation.

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Business in Turkey

Mixed signals

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A bad time to scare off foreign investors

WHEN Greece's second-largest lender, Alpha Bank, sealed an agreement in 2006 to buy a 50% stake in a small Turkish bank, it fully expected Turkey's authorities to bless the deal. Alpha's bigger rival, the National Bank of Greece, had itself just bought a Turkish bank, which suggested that Turkey's historical enmity with its western neighbour was not going to stand in the way. But last year regulators said "no" without explaining why. One theory, advanced in the Turkish media, is that the rejection was because of national security, since one of Alpha's board members was a former chief of Greece's national intelligence service. Another possibility is that with around 40% of Turkish banks and 70% of the stockmarket in foreign hands, there is growing resentment towards anyone from abroad.

Either way, this is a bad time for an outbreak of economic nationalism. The credit crunch and the slowdown in America are making foreign investors wary. Turkey looks particularly vulnerable to shifts in foreign sentiment, because it has a widening current-account deficit. Adding to investors' queasiness, Turkey has not yet said whether it will renew its loan agreement with the International Monetary Fund, a key anchor for confidence, when it expires in May.

Alpaslan Korkmaz, the boss of Turkey's investment agency, insists that he is not worried. Foreign-direct investment reached a record $22 billion in 2007. "This year is going to be even better," he declares. Born to a Turkish *Gastarbeiter* in Switzerland, Mr Korkmaz was snatched from his job as the head of Freiburg's FDI agency in 2006. He has since toured the globe, wooing investors by vowing to cut through bureaucracy and push for business-friendly reforms. On February 28th he claimed his first victory, when a law was passed offering tax breaks to companies employing more than 50 people in research and development.

Mr Korkmaz believes the new law will draw in more automotive and technology firms and help to boost high-tech exports. Magna International, a Canadian car-part giant, is planning to spend as much as $500m expanding its plant in Turkey, which would create around 4,000 jobs. Russia's third-largest steelmaker, OAO Magnitogorsk Iron & Steel Works, has said it will build a multi-billion dollar steel factory on Turkey's Black Sea coast.

Most Western investors agree that the business environment in Turkey has improved a lot since the mildly Islamist Justice and Development (AK) party came to power in 2002. GDP growth has averaged 6.6%, inflation has been tamed, and FDI has boomed. Red tape has been cut, too. "In the old days it would take months to register a company—now it takes days," says a corporate lawyer. In a World Bank study evaluating the ease of doing business in 178 countries, Turkey ranked 57th in 2008, up from 65th in 2007. Looking ahead, a report released this week by PricewaterhouseCoopers, a consultancy, predicts that Turkey's economy will equal Italy's in size by 2050.

Yet obstacles remain. It can still take years for foreigners to obtain work permits. "Once you hit the lower levels of bureaucracy, there's a lot of hostility to foreigners," notes a Western financier. Unusually, non-Turkish board members of Turkish companies are required to have residence permits as well. And there is growing concern that the constitutional court will rule that a law exempting foreigners from paying taxes on interest should be scrapped.

Meanwhile, the Turkish media is awash with hysterical reports about mysterious Israelis buying up swathes of land along the Syrian border and Gulf contractors hoping to "Arabise" Istanbul's skyline. These may have played a part in the legal tangles facing Dubai Holding, an investment firm that wants to build Europe's tallest skyscraper in Istanbul.

The harder task Mr Korkmaz faces is to draw greenfield investment to Turkey. Only 20% of FDI in 2007 created new jobs. The rest was mergers and acquisitions (70%) and land purchases (10%). This year is

not expected to be much different. Most foreign investment is expected to come from the sale of the state-owned Halkbank and a variety of other government-held assets, including the national lottery and parts of the gas-distribution network.

Yet even the car factories and other foreign schemes Mr Korkmaz is so excited about are no economic panacea. Nearly all of the components they use are foreign. “It's a derivative economy,” notes David Edgerly, a financial consultant based in Istanbul. In the long term, he warns, the real threat to Turkey comes from countries such as Iran and Pakistan—with large, young populations and low labour costs. The foreign manufacturers that set up in Turkey could easily move a bit farther east.

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Shipping

Heavy weather

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Reuters

Ah, 2007—those were the days

A golden era for shipping may be coming to an end

ONLY last year many people in the shipping industry felt that they were experiencing the best conditions in their careers—and possibly ever. Bulk carriers were prospering thanks to China's vast appetite for the commodities needed to feed its factories, and the container lines hauling finished products to Western markets were thriving too. Fortunes were made.

The share prices of two shipping companies listed in Hong Kong, Pacific Basin and Jinhui Holdings, increased fivefold between the middle of 2006 and the middle of 2007. Meanwhile, staggering sums were made in private transactions. Ships generally fall in value as they age, yet an iron-ore carrier built for $31m in 2001 was sold for $150m in 2007 and was immediately leased out on a long-term contract, making a vast profit for the buyer, even after that made by the seller.

The cycle has not entirely turned. An oil tanker bought for $142m and still under construction was recently resold for $168m, because the petroleum business remains strong. Gains in shipping lines' and shipbuilders' reported revenues and profits are still impressive, and the world economy continues to expand. But signs of weakness are starting to show.

On March 3rd Pacific Basin announced annual profits of $472m, up 328% on the previous year, but its share price is down almost 30% from its peak last November. Jinhui's shares are down even more, and in late January it said it had paid $4m to cancel construction contracts for two huge ore-carriers, worth $123m each, that it had ordered in November—at the very moment that may, in retrospect, have been an inflection point. The cancellation was put down to financial difficulties flowing from America's credit crunch. But bankers seem suddenly alive to the possibility that demand for shipping may be slowing just as the supply of ships is increasing.

Other firms are also showing signs of concern and are taking tentative steps towards consolidation. Denmark's Maersk Line, the industry leader, plans to begin sharing vessels with competitors on some transpacific routes, as part of a broad cost-cutting program. Singapore's Neptune Orient Lines has been discussing a tie-up with TUI of Germany, though this week their talks were said to have broken down.

Of course, the industry has weathered plenty of ups and downs in the past, most recently in the late 1990s. It remains profitable overall. But as its revenues grow, its margins are falling, according to UBS, an investment bank. The main problem is that growing demand in 2003 prompted shipping lines to order too many new ships. About 60% of the global capacity is about to be floated, adding to a huge increase in supply over the past three years.

The glut of shipping capacity has forced down rates. But the shortage of crews and the rising oil price mean the cost of running ships is rising. And because inflation is pushing up the value of cargoes, insurance costs are going up as well. Minor savings are possible, notably by reducing the speed of ships to save fuel, but customers are increasingly intolerant of delays.

The new supply and higher costs hit just as shipments from Asia to America's West Coast—the busiest route—showed a five-month decline, the most protracted since 1995, according to data collected by UBS. Shipments from Europe to America are also shrinking, after three years of solid growth. There are some bright spots: shipments from Asia to Europe, no doubt helped by the rise of the euro, are expected to increase by 12.5% this year, says UBS—though that estimate is lower than previous forecasts. The sharpest increase in shipments is from America to Europe and Asia, but this will not be enough to offset the decline in traffic from China.

Despite the heavy weather ahead, it may be some consolation to remember that although the shipping industry is among the first to feel the chill of a slowdown, it will be also be the first to benefit from a recovery, whenever that comes. And it will have plenty of capacity.

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Face value

Stopping the rot

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Peter Löscher of Siemens attempts one of the biggest corporate clean-ups in history

Reuters

HE WORKED as a ski instructor to pay his way through university—and today Peter Löscher is once again expected to provide guidance in a fast-moving and potentially dangerous situation. The tall, loose-limbed Austrian, brought in as chief executive of Siemens last July, could hardly be more squeaky clean. Even the decor in his office above Wittelsbacherplatz in Munich is spartan, which seems fitting for the man leading one of the biggest corporate clean-ups in history. Most recently, on March 1st, he appointed legal officers to each of the sprawling engineering group's divisions. He wanted to emphasise that obeying the law is a vital aspect of every operational decision.

His hope, and that of 400,000 employees at Siemens, is that the steady flow of allegations about bribery and corruption will soon dry up—and with them the damaging investigations. Since November 2006, when police raided the group's offices across Germany, hardly a week has gone by without new allegations of wrongdoing by company officials in places from Botswana to Beijing. Siemensianers, as employees were once proud to call themselves, are fed up with being the butt of jokes about slush funds and secret accounts in Liechtenstein. Mr Löscher's job is to purge the company from top to bottom, so that Siemens can put the scandal behind it and enjoy its position as one of the world's leading companies, and one of globalisation's great winners.

Last month a Munich court rejected Siemens's claim that the practice of bribing the clients of its medical division with airline tickets, which they could exchange for cash, was not "systemic". That is just one example of how €1.3 billion ($2.5 billion) is reckoned to have been illegally spent around the world in the past few years to beat the competition. Investigators allege that there was a culture at Siemens, endorsed by senior managers, to use bribes and slush funds to win contracts, especially in its communications and power-generation divisions. Last year Klaus Kleinfeld, then chief executive, and Heinrich von Pierer, his chairman and predecessor, resigned under pressure from shareholders. (Both have denied knowledge of any corruption.) One former board member is being investigated, and others are expected to share his fate. And because of its New York listing, Siemens is being investigated by the much-feared Securities & Exchange Commission, which can impose much heavier sanctions than the €660m in penalties Siemens has paid in Europe so far.

Appointing Mr Löscher, an untainted outsider, was an effort to draw a line under the scandal. He had previously headed divisions at GE, Siemens's great rival, and Merck, a pharmaceuticals giant. He spent his first few months at Siemens travelling and learning the ropes. Despite its problems, the group impressed him with its global culture. In many countries, such as his native Austria, it is regarded as a local firm. (Mr Löscher has absorbed plenty of different cultures himself: he studied at the Chinese University in Hong Kong and Harvard Business School, and his wife is Spanish.) Over Christmas he then

dropped a bombshell, warning top managers in a letter that ignorance and loyalty were no excuse for having broken the law. Managers were offered an amnesty until January 31st—later extended by a month—to encourage them to spill the beans. And they have been doing so: 110 came forward, giving investigators dozens of new leads.

That prompted an unusual decision, just before Siemens's annual general meeting on January 24th, to postpone a shareholders' vote of confidence in the managing board (the spotless Mr Löscher excluded, of course). A law firm hired by Siemens to investigate corruption said it had new information pertaining to the conduct and knowledge of people who "have served on the managing board during the past several years". This is an awkward situation. There must be a presumption that Mr Löscher's fellow board members are blameless, but it is like climbing with a string of mountaineers, one of whom may conceivably have doctored the rope. "I have no information to suggest I should not have 100% confidence in my colleagues," says Mr Löscher.

Meanwhile, there is a company to run

None of this seems to have dented Siemens's ability to make money and win new contracts—so far, at least. Most of its units met their target operating margins in the most recent quarter, and order books are fuller than they were a year ago. "It proves you can grow with compliant business," says Mr Löscher. He has left in place his predecessor's strategy of exploiting two "megatrends": demographic change (in particular, ageing in rich countries, which boosts demand for health-care technology) and urbanisation (which creates demand for power, water and transport infrastructure). Whatever the near-term effects of the credit crunch and an economic slowdown, these trends seem likely to continue for years to come. It is a good story, spun around a wide collection of businesses which analysts had long penalised with a conglomerate discount. Mr Löscher claims most analysts no longer apply this to Siemens.

He has performed a cosmetic restructuring, however, streamlining the organisation into three main divisions: industry, energy and health care. Having shed its mobile-phone and car-navigation divisions, Siemens is still trying to unload its networking arm: on February 26th it said 6,800 jobs would have to go to make the unit more palatable to potential buyers. Its bulbmaking and computer-services divisions may be next.

Siemens shareholders are generally pragmatic: they have been more concerned about streamlining the business than the corruption scandal. The share price has responded favourably to news of a share buy-back programme, and the announcement in January that Mr Löscher had spent €4m of his own money buying Siemens shares. His fellow board members promptly bought €1.5m-worth of shares themselves, suggesting that they too are confident in his ability to stop the rot.

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Trade bans and conservation

Call of the wild

Mar 6th 2008 | LONDON AND SAN FRANCISCO
From The Economist print edition

AFP

Is the prohibition of trade saving wildlife, or endangering it?

TWIN dragons sit high above the bustle of Grant Street, marking the ceremonial entrance to San Francisco's Chinatown. Up a steep hill, the cheap souvenirs give way to more exotic wares: antique figures carved in the Japanese *netsuke* style, statues of monkeys and roosters, delicate earrings and necklaces. They are ivory. There are lots of them. And they shouldn't be there.

In 1989 the signatories of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) agreed to ban trade in ivory. Last year CITES, which now has 172 member countries, extended this ban for a further nine years, having sanctioned but two sales from stocks, of which only one has taken place. A stroll in Chinatown suggests that trade is thriving nonetheless. A forthcoming report by researchers for Care for the Wild, a British animal-welfare and conservation charity, says that around half the ivory in this market comes from illegally killed elephants. Other studies reveal similar stories elsewhere in the West.

A sharp increase in ivory seizures in recent years also points to a flourishing trade. Meanwhile, rising wealth in Asia is raising the returns from poaching. Prices have leapt from $200 a kilo in 2004 to $850-900. New ivory is appearing: you can encase your mobile phone in it if you like. Some scientists think poaching may be as prevalent as it was before the original ban.

Citing CITES

The ivory ban is frequently held up as a prime exhibit for CITES, which many conservationists consider a highly successful agreement. Elephant numbers, according to figures from the International Union for the Conservation of Nature, have been rising by 4% a year in the well-protected populations of southern and east Africa, but in central and west Africa no one knows what is going on. Some countries, such as Botswana, home to a quarter of the African total, and South Africa, now have so many elephants that they would like to shoot more of them (and have asked CITES, without success, for permission to sell more ivory).

The only certainty is that the official figures do not reflect the extent of poaching. A huge haul of ivory in 2002, the result of the slaughter of between 3,000 and 6,500 beasts, probably came largely from elephants in Zambia. Yet Zambia had reported the illegal killing of only 135 animals in the previous ten years. Suppose, says Samuel Wasser of the University of Washington, in Seattle, that customs officers capture one-tenth of what is poached (a guess, but a fair guess). That implies that 7.8% of Africa's elephants are killed every year, compared with 7% before the ban. This is a continent-wide average:

while pachyderm populations in Botswana and South Africa are booming, elephants elsewhere are faring badly.

In all, CITES bans trade in nearly 1,000 animal and plant species; trade in many more is limited by permits. In testimony to America's House of Representatives on March 5th, William Clark, chairman of the Interpol working group on wildlife crime, said that there were clear signs that illegal trade was increasing. More frequent seizures, of larger volume, have been occurring, even though enforcement capacity has not changed much. The increased seizures, said Mr Clark, reflect larger, more frequent shipments by the sophisticated criminal gangs now involved in the trade.

If trade is on the rise, then the efficacy of trade bans as a conservation measure is at least debatable. To be sure, some bans have worked. Exports of wild birds from four of the five leading bird-exporting countries fell by more than two-thirds between the late 1980s and the late 1990s as a result of CITES-related trade measures, including an American import ban. Tanzania went from exporting 38,000 birds in 1989 to ten a decade later. When trade in most big cats was outlawed, volumes dropped, from 450,000 skins in 1980 to about 45,000 in 1999.

The temporary ban on the trade in the vicuña, a relative of the llama, and its wool is another success. The population had dwindled to 12,000 by the 1960s from maybe 2m at the time of the Spanish conquest of Latin America. Four South American countries imposed a trade ban in 1967; a CITES ban followed in 1975. Later CITES allowed trade in sheared wool on a permit basis. The population has risen to more than 250,000. The ban lasted long enough to give vicuñas time to recover, but not so long that illegal trade became entrenched.

Horns and stripes

However, for other species a ban has merely spawned a thriving illegal trade. After trade in all five species of rhino was banned, the black rhino became extinct in at least 18 African countries. The global rhino population has fallen from 75,000 in the early 1970s to around 11,000 today, and some species are on the verge of extinction. Tigers have fared no better. John Hutton, the director of the World Conservation Monitoring Centre, an arm of the United Nations Environment Programme, says that the 30-year trade ban, “hasn't made a blind bit of difference and the strategy is a failure.”

By its nature, the scale of illegal wildlife trade is impossible to know precisely. Legal trade, according to one estimate, was worth around €240 billion ($300 billion) in 2005, most of it accounted for by timber and fisheries (see table). Illegal trade is big business too. One guess puts the value of illegal caviar trade at many times that of legal commerce—itself worth €244m.

The point is not that bans never work. They can, especially in the short term or when species are in dire danger. But their longer-term success depends on three factors. First, they must be coupled with a reduction in demand for the banned products. If a ban helps to shift people's tastes, so much the better. Second, they must not undermine incentives to conserve endangered species in the wild. Third, they have to be supported by governments and citizens in the countries where these species live. If these conditions are not met, bans are unlikely either to reduce trade or to maintain endangered species. They may even make matters worse.

Take demand first. Trade in cat and seal skins, and in parrots, has fallen because consumer campaigns destroyed demand at the same time as trade bans cut the legal supply. That was true of ivory for a time, at least in the West, but rising Asian wealth has been pushing demand up again. Trade is reduced most when demand is sensitive to price: cat and seal skins and parrots fall into this class. Demand is also influenced by fashion (for example, for fake fur). Sometimes, close substitutes are available—such as birds bred in captivity.

For tigers and rhinos, demand has proved more resilient. The trade ban has served to increase the price of horn, but demand has stayed strong—and so, therefore, has the incentive to poach. The resulting illegal trade has proved hard to combat.

Second, consider incentives to conserve. Bans may cut out legal wildlife trade, but some economists say they undermine efforts to conserve animals and plants in the wild and may even create incentives to get rid of them. If people have no economic interest in maintaining wild animals or their habitat, the attraction of converting the land to some other use, such as agriculture, increases. Cornelis van Kooten, an economist at the University of Victoria in British Columbia, points out that the North American bison was doomed because the land it lived on became more valuable for rearing cattle.

In a more modern example, Kenya banned hunting for sport and other consumptive uses of wildlife in the late 1970s. But the competition for land between a rising human population and animals, which can be a danger to crops, life and limb, is intense. Kenya's wild-animal population has fallen by about 70% in the past 30 years, says Michael Norton-Griffiths, an economist in Nairobi.

A recent European Union ban on the import of wild birds has had a similar effect. Ostensibly a veterinary measure to prevent the spread of avian influenza, the ban has bankrupted an Argentine plan to conserve the blue-fronted amazon, a parrot, through sustainable use. "It went from a well policed, sustainably managed operation, to one where there was no incentive to conserve the birds at all," says John Caldwell, who manages CITES's trade database in Britain. As a result, habitat may be stripped out for commercial crops.

Bill of sale

Legal global wildlife trade, 2005

Commodity	Estimated value (€m)
Live animals	
Primates	75
Cage birds	38
Birds of prey	5
Reptiles (inc. snakes and turtles)	31
Ornamental fish	257
Animal products for clothing or ornaments	
Mammal furs and fur products	4,000
Reptile skins	255
Ornamental corals and shells	85
Natural pearls	57
Animal products for food (excl. fish)	
Game meat	365
Frogs legs	40
Edible snails	60
Plant products	
Medicinal plants*	1,000
Ornamental plants	11,000
Fisheries food products (excl. aquaculture)	68,600
Timber	154,000
Total	239,500

Source: TRAFFIC *2004 estimate

In addition to removing incentives to conserve, bans also remove a source of income with which to manage conservation. Partly for this reason, some countries have asked CITES for permission to sell elephant ivory, rhino horn or tiger bone (which is available from some captive-bred tiger populations in China). Apart from allowing the two one-off ivory sales and some trophy hunting of elephants, CITES has firmly rebuffed these requests.

One official argument against trade is that a legitimate source of specimens can act as cover for illegal sales. True, but technological advances are likely to make it easier to distinguish legal and illegal goods (see article). Another is that sales would cut prices and hence stimulate demand. True again, but lower prices would also reduce the incentive to poach. Sales would also improve the incentives for landowners or governments to keep wildlife. Studies based on seizures show no evidence of an effect on illegal trade, says Steven Broad, director of TRAFFIC, a British group that monitors wildlife trade.

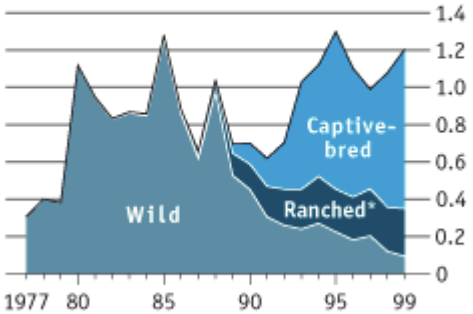
Instead of banning trade outright, CITES has sometimes permitted breeding programmes providing an alternative, legal source of animal products. These have been hugely successful in reducing uncontrolled exploitation, for example of crocodilians. The trade in their skins is now largely supplied from alligators, caimans and crocodiles bred in captivity, although a quarter are either ranched or come from the wild (see chart).

How far this could be taken is hard to say. The costs of rearing a tiger in captivity reach thousands of dollars. Killing one in the wild is far cheaper. And for some species, such as tigers and bears, there is anecdotal evidence of a strong consumer preference for wild products. However, no one has yet tried to replace these with products from animals bred in captivity.

Snapped up

Estimated crocodilian skins supplied

By method of production, m



Source: CITES trade data/ World Conservation Union *Eggs collected from the wild and hatched in captivity

There is another economic snag. Although captive breeding of parrots, salmon, deer and crocodiles may save wild populations from over-exploitation, it may leave them undervalued. Captive breeding can erode incentives to conserve species in the wild. If they are to be conserved, money needs to be spent. It is the reinvestment of resource rents, says James MacGregor, of the International Institute for Environment and Development in London, that is important for the sustainable use of a species.

Paws for thought

The third lot of factors affecting the success of trade bans is the effectiveness of government and social institutions. National enforcement of CITES trade bans, says Heather Sohl of the British arm of WWF, an environmental charity, is vital for them to work. Frequently, however, governments have not kept their promises. Why should this be?

The obvious economic explanation is that the over-exploitation of animals and plants is an example of the "tragedy of the commons". If no one owns the wildlife or the land on which it lives, the behaviour that is individually rational—poaching, clearing land and so forth—may be collective folly. Trade ban or no trade ban, without enforceable property rights, the underlying tragedy remains.

Timothy Swanson, a professor in resource economics at University College, London, argues that the tragedy lies not in the commons itself but in governments' failure to control access to wildlife and the land it occupies. The reason lies in their "opportunity costs, alternative development priorities, governance problems and resources". He illustrates this in a recent paper in the *International Review of Environmental and Resource Economics*, about the losses of elephants before the CITES trade ban.

When the African elephant's decline was at its worst in the 1980s, four countries were responsible for most of the losses: Sudan, Tanzania, Zaire and Zambia. Other governments, says Mr Swanson, had invested in retaining elephants, through the provision of land and resources for management. The bad four countries had a deliberate policy of retaining open access, in order that elephants be removed. They lost 750,000 elephants in a decade; 30 countries had no aggregate gains or losses and in several populations increased.

Governments, he says, can protect and develop natural resources, such as tin mines and tea plantations. The reason they fail to do so for wildlife and forests is better viewed as a consequence of social choice than of imperfect property rights. There are plenty of examples of successful commons, from Swiss grazing pastures and Japanese forests to fisheries in Maine and Fiji. The problem with wildlife is a lack of social structure or formal rules that govern access and use. If governments do not provide them, wildlife will suffer.

Breeding obvious

In essence, there are two sorts of possible response to the question of how to conserve endangered species—apart, that is, from doing nothing. One is a command-and-control mechanism: trade bans are examples of these. They can work, but they tend to be inefficient because they fail to take into account the response of human beings to economic incentives. The alternative is to try and harness the incentives that command-and-control ignores. Economic incentives may include removing subsidies for conversion to agricultural land, differential land-use taxes, conservation subsidies, individual transferable quotas and communal property rights. They are all part of a growing economic toolkit for encouraging conservation while minimising the cost of doing so.

Admittedly, markets may not solve every problem. Richard Damania, an economist with the World Bank, says that the reason for saving the snow leopard, say, has nothing to do with market values but reflects intrinsic values, in a similar way to opposition to slavery. Nevertheless, market mechanisms are likely to be useful means to moral ends.

Although CITES arose at a time when command-and-control environmental legislation was popular, parts of the organisation do want to change. Juan Carlos Vasquez, its legal and trade-policy officer, says that policy interventions that do not take into account the underlying causes of wildlife loss have a high risk of failure. "Bans are popular and easy to adopt by enacting legislation, but they do not work everywhere." Mr Broad says that if trade in a species is banned as a last resort, it is a "failure of the system":

governments should have intervened earlier using CITES regulatory measures or other incentives.

More successes, such as the temporary ban on trading vicuña products (and its lifting), are needed. Signs of CITES's evolution are evident in its decision to allow some species to be traded under permit, for example in one-off ivory sales.

Such changes will be fought tooth and nail. Trade makes conservationists nervous and animal-welfare charities suspicious. Barbara Maas, who heads Care for the Wild, dismisses the idea that wildlife trade can be used to support conservation as a "fundamentally anthropocentric world view". In Kenya attempts to amend legislation to allow for the wider consumptive use of wildlife were subject to heavy lobbying by international animal-welfare charities. (One lobby group is said to have threatened to undermine Kenya's tourist trade.)

Similarly, attempts to allocate money to CITES for economic studies of wildlife use and conservation have faced "strong resistance", say people close to the organisation, partly due to pressure from international lobbies. The biggest problem with economic studies, says Mr MacGregor, is that "questions will be asked about the use of funding for a lot of conservation work that is founded on faith." CITES could become a much more powerful tool for conservation. The question is whether it will be allowed to do so.

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Emerging markets

The decoupling debate

Mar 6th 2008 | HONG KONG
From The Economist print edition

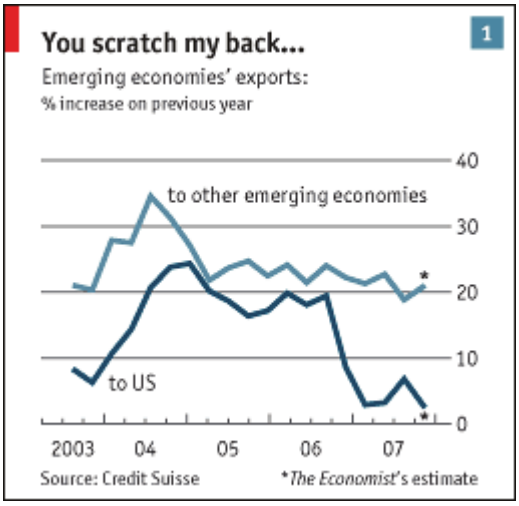
As America's economy struggles to stay aloft, the developing world is learning to spread its wings

Illustration by Satoshi Kambayashi

MANY nasty words begin with the letter D: death, disease, depression, debt (when you drown in it) and deflation. "Decoupling", on the other hand, has a nicer ring to it, even if it is the source of a great deal of controversy. Economists continue to argue about whether or not emerging economies will follow America into recession. The most pessimistic claim that "it makes no sense to talk about decoupling in an era of globalisation": economies have become more intertwined through trade and finance, which should make business cycles more synchronised, not less. The slide in emerging stockmarkets on Wall Street's coat-tails appears to endorse their view. Yet recent data suggest decoupling is no myth. Indeed, it may yet save the world economy.

Decoupling does not mean that an American recession will have no impact on developing countries. That would be daft. Such countries have become more integrated into the world economy (their exports have increased from just over 25% of their GDP in 1990 to almost 50% today). Sales to America will obviously weaken. The point is that their GDP-growth rates will slow by much less than in previous American downturns. Most enjoyed strong growth during the fourth quarter of last year, and some speeded up, even as America's economy ground to a virtual halt and its non-oil imports fell.

One reason is that while exports to America have stumbled, those to other emerging economies have surged (see chart 1). China's growth in exports to America slowed to only 5% (in dollar terms) in the year to January, but exports to Brazil, India and Russia were up by more than 60%, and those to oil exporters by 45%. Half of China's exports now go to other emerging economies. Likewise, South Korea's exports to the United States tumbled by 20% in the year to February, but its total exports rose by 20%, thanks to trade with other developing nations.



A second supporting factor is that in many emerging markets domestic consumption and investment quickened during 2007. Their consumer spending rose almost three times as fast as in the developed world. Investment seems to be holding up even better: according to HSBC, real capital spending rose by a staggering 17% in emerging economies last year, compared with only 1.2% in rich economies.

Sceptics argue that much of this investment, especially in China, is in the export sector and so will collapse as sales to America weaken. But less than 15% of China's investment is linked to exports. Over half is in infrastructure and property.

It is not just China that is building power plants, roads and railways; a large chunk of the Gulf's petrodollars are also being spent on gleaming skyscrapers and new airports—not to mention ski-domes in the desert. Mexico, Brazil and Russia have also launched big infrastructure projects that will take years to complete.

The four biggest emerging economies, which accounted for two-fifths of global GDP growth last year, are the least dependent on the United States: exports to America account for just 8% of China's GDP, 4% of India's, 3% of Brazil's and 1% of Russia's. Over 95% of China's growth of 11.2% in the year to the fourth quarter came from domestic demand. China's growth is widely expected to slow this year—it needs to, since even Wen Jiabao, the prime minister, warned this week of overheating—but to a still boisterous 9-10%.

Smaller economies in Asia look more vulnerable. For example, Malaysia's exports to America amount to 22% of its GDP, and they fell by 18% in the year to December. Yet its annual GDP growth jumped to 7.3% in the fourth quarter, thanks to consumer spending and a jump in government infrastructure investment.

Mexico's exports to America are an even larger 27% of its GDP. Real GDP growth held steady at 3.8% in the year to the fourth quarter, but manufacturing jobs are falling and workers' remittances from abroad are falling. Retail sales grew by only 1% in the year to December. Yet the economy is holding up better than during previous American downturns, partly because high oil revenues have enabled the government to increase investment by around 50% over the past year.

American downturns have often caused the prices of oil and other raw materials to slump, but this time China's surging demand is propping up prices and fuelling booms in Brazil, Russia and the Middle East. Brazil's exports jumped by 26% in the year to February. In turn, if prices stay strong, so will China's exports to commodity-producing countries. A sharp slowdown in China would hurt them more than an American recession will.

Act global, think local

A recent IMF study* by Cigdem Akin and Ayhan Kose offers some support for the idea that you can have both decoupling and globalisation at the same time. They divide 106 countries into three groups—developed, emerging, and low-income developing countries (which are less integrated into the world economy)—and then measure how the correlation between economies has changed over time as cross-border flows have expanded. They find that growth has indeed become more synchronised among developed economies and also among emerging economies. But, surprisingly, economic activity in emerging economies has diverged (or decoupled) from that of developed economies over the past two decades. The impact of rich economies on emerging economies' growth has fallen sharply.

The popular argument is that business cycles should become more synchronised because in a globalised world everyone is in the same boat. But this rests on an out-dated impression that poor countries mainly export to rich ones. Instead, emerging economies' trade with each other has risen faster and now accounts for over half of their total exports. Emerging markets as a group now export more to China than to the United States (see chart 2).

Some contend that this mainly reflects imports of intermediate goods into China for assembly; the finished goods are then exported to America and so will be hurt by slower growth. There is some truth to this. However, an analysis by BCA Research, a financial research firm, finds that Asian exports to China are increasingly driven by China's own domestic demand. A growing share of emerging economies' exports are also commodities sold to China.

Another reason why globalisation and decoupling can co-exist is that opening up economies has not only boosted poor countries' trade, it has also spurred their productivity growth and hence domestic incomes and spending. In 2007 emerging economies' real domestic demand grew by an average of 8%, almost four times as fast as in the developed world.

A severe recession in America could still have a nasty impact on the developing world if commodity prices collapsed and if it caused stockmarkets to fall more steeply, depressing global consumer and business confidence. A sharper fall in the dollar could also further squeeze emerging economies' exports.

But for perhaps the first time ever, developing countries would be able to make full use of monetary and fiscal policy to cushion their economies. In the past, when they were net foreign borrowers, capital inflows tended to dry up during global downturns as foreign investors shunned risky assets. This forced governments to raise interest rates and tighten fiscal policy. Economies with large external deficits, such as South Africa, Turkey and Hungary, are still vulnerable. But most emerging economies now have a current-account surplus and large foreign reserves; many have a budget surplus or are close to balance, leaving ample room for a fiscal stimulus if necessary.

Perhaps the best support for decoupling comes from America itself. Fourth-quarter profits of big companies, such as Coca-Cola, IBM and DuPont, were better than expected as strong sales growth in emerging markets offset a sharp slowdown at home. In other words, bits of American business are rising above their own economy. With luck, the world economy can rise above America's.

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*"Changing Nature of North-South Linkages: Stylized Facts and Explanations", IMF Working Paper WP/07/280.

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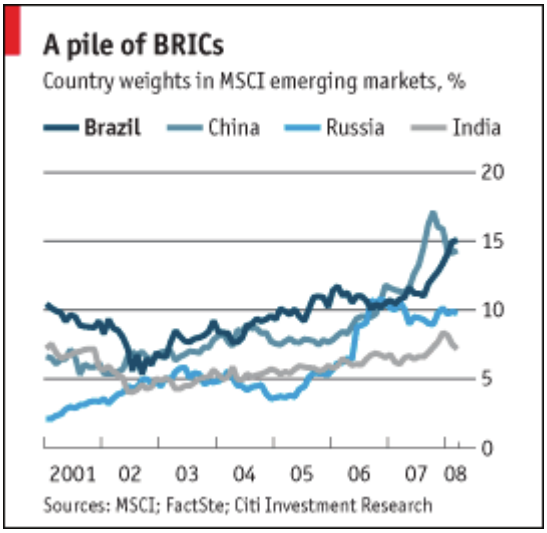
Brazil's stockmarket

Food, fuel and froth

Mar 6th 2008 | SÃO PAULO
From The Economist print edition

The biggest emerging market, sort of

Get article background



BRAZIL, or at least the tiny part of it that reads the financial pages, has become used to breaking records lately. In February the central bank announced that the country was a net creditor with the rest of the world for the first time, thanks to a whopping $190 billion of reserves. Then Citigroup put out a research note highlighting the rise of the Bovespa, Brazil's stockmarket, to the number one spot on MSCI's emerging-markets index, which has a wide following.

This does not quite mean that Brazil is the biggest stockmarket outside the rich world, as some news reports suggested. The MSCI index only includes shares that can be bought and sold by foreigners and are traded frequently. The market value of Brazil's stockmarket is still dwarfed by the markets in China. But most fund managers who invest in emerging markets measure themselves against the MSCI index, so the increase in the country's weighting does matter.

Brazil has been propelled to the top spot by the Bovespa's performance, but more importantly by China's recent slide. Since mid-October 2007, China's stockmarkets are down by about 20% in dollar terms. Over the same period the Bovespa is up by almost 5%.

What explains this resilience? The main reason is the continued surge in the price of oil and other commodities. Anyone who buys the index in Brazil has a big exposure to these two asset classes—Petrobras, the state-controlled oil company, and Vale, a global mining company, together account for just over 30% of the Bovespa's total market value. Other agricultural producers also carry a lot of weight. This bias towards commodities makes the Bovespa rather more like Australia's All Ordinaries index than like stockmarkets in India or China.

There are some signs that foreign investors have cut their exposure to Brazil recently, perhaps to meet funding requirements elsewhere. And it looks unlikely that this year will see another flourish of IPOs, 80% of which were hoovered up by foreign capital last year. Some will see this as just deserts. In the Citigroup note that publicised the Bovespa's coronation, Geoffrey Dennis wrote that the market was "overbought, expensive and overdue a pause". São Paulo's financial folk will believe it when they see it.

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Buttonwood

Bling fling

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Gold is enjoying a speculative surge. Beware

IT IS enough to make a gangsta rapper curse. The cost of bling is rising sharply. On March 5th gold took a pot shot at $1,000 a troy ounce, hitting a record $991.9. It is widely expected to shoot even higher than that in the near future.

In one sense, gold's rise is part of a surge in commodity prices that has seen oil break above $100 a barrel, and wheat reach a record high on supply shortages and rising demand from the world's meat-eating middle classes. Indeed, bullion has been outperformed by another precious metal, platinum, which has doubled since the start of 2007.

But gold is not a normal commodity. The forces of supply and demand, largely driven by the jewellery markets of Asia and the Middle East, are often overwhelmed by the yellow metal's role in investment markets. Thanks to its historic role as the basis for the global monetary system, many people see gold as a currency in its own right. Indeed, enthusiasts regard gold as the only true currency, since paper money will always be debased by the financial authorities.

As the dollar is the dominant global currency, gold appears to be acting as a hedge against the greenback; rising when it falls. But since the start of 2005, it has doubled in euro and yen terms as well.

It may sound circular, but inflationary fears are one of the reasons gold prices are rising. Although American producer prices rose 7.4% in the year to January 2008, the highest increase since 1981, and headline consumer-price inflation is 4.3%, the Federal Reserve is still committed to cutting interest rates. Investors have got the impression, fairly or not, that the Fed is far more concerned about American growth than it is about inflation (or the declining dollar). "Gold is telling you that the central banks have fallen asleep at the wheel," says a fund manager at BlackRock, a money-management group.

But gold is perceived to be a haven from more than one economic horror story. John Reade, a commodities analyst at UBS, says the metal is also gaining from risk-aversion among investors, who are worried about the instability of the financial system in the wake of the credit crunch. He has noticed that gold coins and bars are being snapped up in very large volumes by investors. That suggests some people are so worried about the health of the banks that they would rather hold their cash reserves in solid form.

As a result, Mr Reade, who reckons that the fundamentals justify a gold price of only $700-750 an ounce, has "thrown in the towel" and now expects bullion to reach $1,025 within a month and $1,075 within three.

Gold has also been boosted in recent years by a new type of buyer—exchange-traded funds (ETFs). These pooled portfolios allow retail investors to take a punt on the metal without the bother of storing coins or bars and without the agency risk of buying shares in mining companies. Hussein Allidina, an analyst at Morgan Stanley, reckons ETFs own more than 915 tonnes of gold—more than the European Central Bank. Funds are steadily being launched in new countries, such as Dubai. This boost to demand is not being matched by a rise in supply. Gold production peaked in 2001, according to BlackRock, and is expected to decline in each of the next three years.

The rise in the gold price has revived the prickly issue of whether central banks were right to sell their reserves earlier this decade. In answer to a parliamentary question, Britain's Treasury recently admitted it had sold about 12.7m ounces for $3.5 billion, an average price of around $276. That gold would now be worth around $12.5 billion.

But if we are excoriating finance ministers for market timing, the mistake made by the then chancellor,

Gordon Brown, pales into insignificance against that of his predecessor, Sir Geoffrey (now Lord) Howe. Had he sold the same 12.7m ounces at the 1980 price peak of $850 (admittedly a difficult task), he would have received nearly $11 billion. Investing that in Treasury bonds since then would have returned 7% a year in real terms, accumulating more than $100 billion. Instead, the money was left in non-interest-earning gold, leaving British taxpayers more than $90 billion down on the transaction.

That comparison is a little unfair to Lord Howe, since the 1980 peak was arguably a blip. But it does remind you that gold can be driven to speculative extremes. When it reaches those heights, investors need to be cautious of the argument that the metal is a long-term "store of value"; after all, between 1980 and 2000, its price dropped by two-thirds in nominal terms. Investors should be wary about being caught out again.

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The credit crisis

Crunch numbers

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A troubling estimate of the costs so far

FEAR of a downward credit spiral hangs over America's economy. The script is well known. Rising losses from the mortgage mess make banks less willing to lend, which weakens the economy's prospects, which puts further strain on the banks. But until now most of the estimates of the likely cost of the crisis look as though they have been plucked from thin air. A paper* prepared for a recent meeting of the US Monetary Policy Forum, a gathering of Wall Street economists, academics and central bankers, is far more thorough.

The study begins by estimating the size of mortgage-related losses using three different methods. One extrapolates from the defaults seen in different mortgage vintages to date; a second calculates the losses implicit in the prices of credit derivatives linked to subprime mortgage-backed securities as measured by the ABX indices produced by Markit (see article); a third draws on the experience of foreclosures in previous regional housing busts in Texas, Massachusetts and California. Each method involves some heroic assumptions. With house-prices falling nationally, foreclosure rates may rise far higher than they have in the past. By contrast, the ABX prices may be reflecting underlying risk and illiquidity as much as expected losses. Strikingly, however, all three approaches yield similar results: that mortgage-credit losses are likely to be around $400 billion.

That is a large number, but it is no worse than the losses that can be suffered on a bad day on Wall Street. The reason that the macroeconomic consequences are likely to be much bigger is that many of these losses will be born by banks and other leveraged financial institutions that hold approximately half of all outstanding mortgage debt in America. If the losses are spread evenly (a big if), that suggests America's banks are likely to take a hit of some $200 billion.

How much would such a loss dampen lending? The answer depends on how easily banks are able to rebuild their capital, and how far they scale back lending in response to weaker balance sheets. The authors reckon that the leverage ratio for financial institutions as a whole is approximately 10:1, so that one dollar of capital translates into $10 of lending. They assume that banks counter half their $200 billion losses with new capital infusions and reduce their leverage ratios by 5%. Estimating total assets at $20.5 trillion, the authors calculate that net lending to businesses and households would shrink by some $910 billion—several times the size of the credit losses.

The final piece of the puzzle is to estimate what effect such a drop in lending would have on the overall economy. If capital markets were perfect, there would be no effect. Instead of borrowing from banks, those in need of funds could issue securities. In the real world, however, a drop in bank lending does affect overall access to finance—all the more so in this crisis, when the lending drought coincides with a sharp drop in securitisation. Historically, GDP growth has indeed been correlated with growth in debt, though it is not clear whether weak credit supply slows the economy or a weaker economy slows the demand for credit. The study tries to sort out the causality by using the Federal Reserve's survey of loan officers as a proxy for the supply of credit. Based on these results, the paper estimates that a $910 billion drop in lending would drag down GDP growth by 1.3 percentage points over the following year.

That is a sizeable hit, and it comes on top of the other problems facing America's economy, such as the drag on consumer spending from falling housing wealth or a weaker job market. What's more, this study looks only at mortgage losses (ignoring, for instance, losses from defaults on credit cards or higher corporate defaults). The news is already sombre: but the eventual costs could be a lot higher.

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*"Leveraged Losses: Lessons from the Mortgage Market Meltdown", by David Greenlaw, Jan Hatzius, Anil K. Kashyap and Hyun Song Shin.

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Valuing securities

Don't mark to Markit

Mar 6th 2008 | NEW YORK
From The Economist print edition

The king of credit indices casts doubt on its own products

THE credit crunch has been good to Markit Group. The company, spun off from Toronto Dominion, a Canadian bank, in 2003, has built a commanding position in the credit-derivative indices used to value fiendishly complex assets—hence the name. As trading in such products has dried up, investors have come to see those indices—such as the ABX (for subprime mortgages), the CMBX (commercial mortgages) and LCDX (leveraged loans)—as oases in a liquidity desert. Banks use the indices to help them calculate write-downs, or to hedge their exposures. The ABX is popular with hedge funds keen to take a view on the housing market.

The indices' relentless fall (see chart) has added to pressure on banks, such as Merrill Lynch and Citigroup, with big mortgage-related holdings. Citi's shares slid to a nine-year low this week on talk of a further, $18 billion write-down. Banks that mark assets far from where the indices trade incur the ire of their auditors.

The indices are undoubtedly useful, but some people think banks are putting too much emphasis on them. They capture only a narrow slice of the market: the ABX references 20 securities, for instance. And they are prone to distortion (mostly downwards) by heavy speculation. "They are not liquid enough to take the weight of short-selling heaped on them," says one fund manager, who adds that the ABX "will probably be remembered as one of the most crowded hedge-fund trades in history." One version of the CMBX implies losses more than 30 times greater than those suffered to date, a multiple that strikes some people as implausible. Dick Bove, a veteran bank-watcher with Punk Ziegel, recently denounced Markit's indices as "fallacious". He expects to see write-ups as their flaws become apparent.

Intriguingly, Markit agrees with the sceptics, up to a point. The firm is working on a report that will highlight the limitations of the ABX and champion other inputs, such as new issuance and recent trades in similar securities, that can help value credit instruments, "Two years ago we had to tout [the ABX's] virtues. Now people consider it to be more relevant than it should be. They are panicking, over-reacting," says Ben Logan, Markit's head of structured finance. He hears frequent complaints from banks on both sides of the Atlantic saying that their auditors want to see entire portfolios marked to Markit indices.

Yet the accountants want to avoid any impression that they are going soft on clients. They fear that would open them to the sort of criticism—and legal action—that engulfed them after the dotcom crash. They are already under fire for allowing eager profit-booking in mortgage securitisations. Sticking with a widely used index is safer than waving through valuations based on banks' own models. "It's cover-your-ass stuff," says Mr Logan. He hopes that Markit's research will persuade the bean-counters to take a broader view. Some regulators also urge them to lighten up, especially in their treatment of structured products. Relying on a single data point is "lunacy", says a senior Wall Street banker. "But these are crazy times."

Markit's self-criticism may seem odd, but bear in mind that it is majority owned by a group of 16 banks, including such walking wounded as Citi and UBS. By and large, their internal models paint a less depressing picture than the ABX and CMBX do. If the auditors can also be persuaded that the indices are unduly pessimistic, the banks may be able to get away with smaller write-downs. If ever there was a time for banks to pick holes in one of their own products, this may be it.

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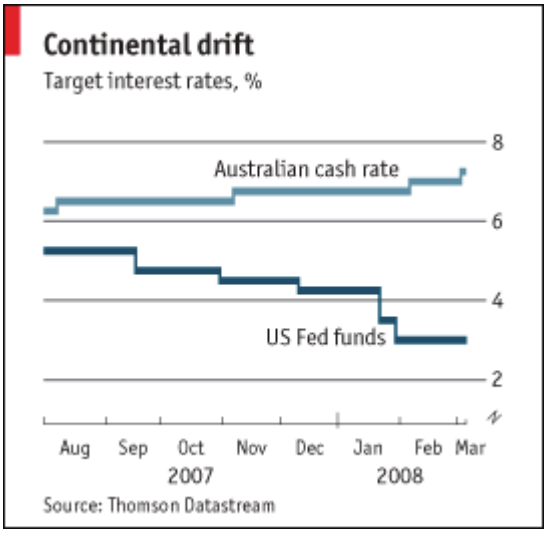
Australia's economy

Hawks in the outback

Mar 6th 2008
From The Economist print edition

One inflation-troubled place where policymakers have acted tough—so far



LIKE much of the world, Australia is troubled by rising inflation. But unlike many western countries, its policymakers are being hawkish. On March 4th the Reserve Bank of Australia raised the benchmark lending rate by a quarter point, to 7.25%, its twelfth consecutive increase and the second so far this year. (On the same day, Canada, a fellow resource producer, cut rates by half a percentage point, partly because of the American slowdown.) Australia's rate rise came just weeks after a pledge by Wayne Swan, its new finance minister, to ratchet up the fiscal surplus.

In much of the world, rising food and energy bills are driving up imported inflation, but in Australia, the price pressures are mostly home grown as the economy booms. Figures released on March 5th showed that GDP expanded by 3.9% in the year to the fourth quarter. In the same period, non-tradable inflation, which measures price growth influenced by domestic pressures, was 4.1%. Tradable inflation, covering internationally traded goods such as oil, was 1.4%, as a stronger exchange rate counteracted rising prices.

Australia's domestic economy is suffering from acute capacity constraints. The unemployment rate in January fell to 4.1%, a 34-year low. That is well beneath the level that can be sustained without causing inflation—a level that Steven Kennedy of Australia's Treasury reckons stands at between 4.5% and 5%.

It is not just the shortage of warm bodies that hurts. The commodities boom has drawn miners to the outback in droves. Country towns are creaking under the demand for hotel rooms. In some cases locals are being dislodged to remote villages. Large-scale immigration is putting even more pressure on the housing stock.

To make matters worse for inflation fighters, real incomes are on the rise. Australians are likely to get richer from the commodities boom, unlike many wage-earners elsewhere in the world. Prices for two of Australia's main exports, coal and iron ore, are likely to increase sharply when the latest contract negotiations wind up. Drought-hit farmers are also likely to benefit from improving weather. The Australian Bureau of Agriculture and Resource Economics estimates that summer crop production, from December through to February, increased by 40% from a year earlier, and that winter crops will rise by 30%.

Of course, the economy is not totally impervious to outside forces. At a time when global credit conditions are drier than the sunburnt fields of southern Australia, the country has had to finance a current-account deficit that hit a record 7% of GDP in the last quarter of last year. As elsewhere in the global banking system, three-month interbank rates have widened—by half a percentage point in the past few weeks. In part that indicates a shortage of liquidity. In response, banks intend to push up their lending rates by more than the increase in official rates.

But that is unlikely to stop the demand for credit, nor do foreigners seem put off. Bill Gross of PIMCO, a large American fund manager, recently invested in Australian debt. In his view, the yields on offer make Australia "one of the world's most attractive bond markets".

Will it remain that way? The Australian dollar wobbled after the rate rise, when Glenn Stevens, the central-bank governor, indicated that further increases may not be needed. Given the strength of the

Australian economy, however, he may not have the luxury to take it so easy.

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Fidelity Investments

Lynched

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From The Economist print edition

Nice perks for commissions

IN MARCH 2003 Jefferies Group, a brokerage firm, took client schmoozing to new heights. It flew a stock trader with Fidelity Investments, a giant mutual-fund group, and his friends by private jet to Miami for a lavish $75,000 bachelor party that featured strippers and dwarf-tossing. Jefferies acknowledged its part in the palm-greasing scandal in 2006, settling with regulators for $9.7m.

This week Fidelity too paid for its role in the affair: $8m to settle charges that 13 employees improperly accepted $1.6m-worth of travel, tickets for pop concerts and sporting events, wine and even DVD players, from Jefferies and other brokers hoping to receive commission-generating buy-and-sell orders. Fidelity has tightened oversight of its trading desks. The venality was "not at all indicative of the ethical standards of the company," it insists.

Perhaps not. But it must be embarrassed by the involvement of Peter Lynch, who once ran Fidelity's mammoth Magellan Fund and remains a company adviser. His haul included 61 tickets to events, including Red Sox games, golf's Ryder Cup and a U2 concert. At least Mr Lynch had nothing to do with the bag of Ecstasy pills given to one fun-loving Fidelity trader.

How pervasive is this sort of thing? The temptation is clear: Jefferies's commissions from Fidelity shot up from $2m to $25m between 2002 and 2004, when the mischief was exposed. But regulators have found little evidence of wrongdoing elsewhere. That is heartening for investors, but not so good for daredevil dwarfs.

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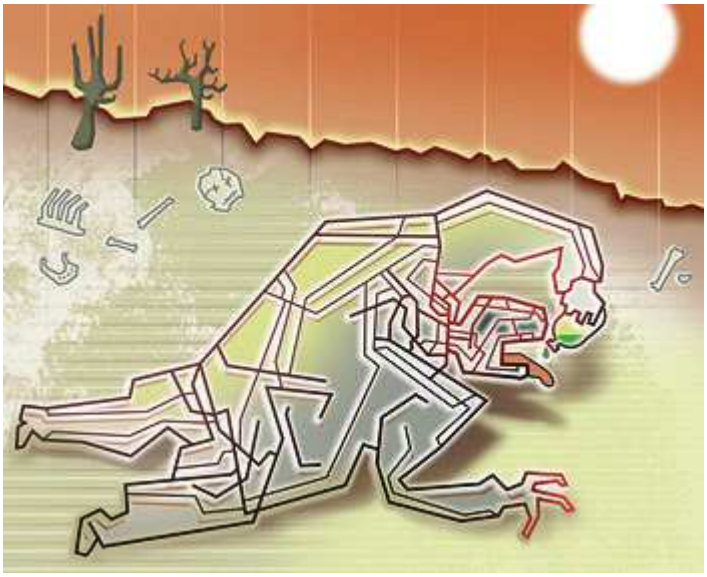
Economics focus

When the rivers run dry

Mar 6th 2008
From The Economist print edition

Can bank regulators and central banks prevent future liquidity crises?

JAC



POLICYMAKERS and academics are still grappling with the causes and consequences of the credit crunch. One broad area of agreement is that ample "liquidity" encouraged the lax lending that led to bad mortgage debts, and a sudden dearth of it helped to precipitate the crisis. But what is liquidity, why does it suddenly evaporate and what can central banks and regulators do to ensure that its ebb and flow does not destabilise economies? This and much else is the subject of a special issue of the Bank of France's *Financial Stability Review*.*

The essence of liquidity is the ability to raise ready money to meet pressing spending needs. A firm is liquid if it has enough cash to pay its suppliers and employees and finance its investment. This funding liquidity is linked to a second facet, market liquidity—the ease with which assets can be sold without losing their value. If financial markets were complete and perfectly liquid, firms and households could always raise cash by pledging their future earnings in return. Both funding and market liquidity rely on a big enough pool of monetary liquidity to draw upon. This is a third aspect of liquidity: the amount of central-bank money flowing around the economy.

Commercial banks play a vital role in providing liquidity. They furnish ready cash to households and firms in exchange for pledges of future income, such as mortgages and loans. Banks make their profits from bearing liquidity risk (holding on to long-term pledges that cannot easily be sold), as well as from credit risk (the danger that such promises may not be kept). The two sources of risk are linked, since the greater the uncertainty about the creditworthiness of borrowers, the harder it is to sell on their loans to a third party. Banks can minimise their credit risk by vetting borrowers carefully. It is trickier to limit liquidity risk, which depends on the willingness of others to trade in markets.

Banks are not the only source of liquidity of course. Large firms can raise funds by selling bonds or shares directly to savers in the capital markets. Banks themselves have sold on bundles of their loans as securities. For a while, indeed, the securitisation boom made the old textbook role of banks seem somewhat redundant. But one of the lessons of the credit crunch is that banks are still important underwriters of liquidity when markets dry up. When investors began to turn their nose up at securities linked to souring subprime mortgages and other risky loans, banks ended up financing them.

That has been one of the main causes of the convulsions in interbank lending markets, a usually

humdrum corner of the financial system which once again is showing signs of strain. In normal times, banks share their cash reserves with each other through short-term loans at interest rates that should closely track the policy rates set by central banks. Since the crisis broke, interbank lending rates have sometimes been unusually high compared with policy rates. Again this week they were signalling that banks may be hoarding liquidity—either because they are worried about their rivals' exposure to dodgy loans, or because they do not want to be caught out in the scramble for cash.

Throughout the crisis central banks have sought to iron out these kinks. At first they offered emergency lending facilities, but banks were reluctant to tap them, because of the stigma attached. To counter the strains in money markets, central banks in America and Britain decided to ease the terms of their lending to all commercial banks. Interbank borrowing costs eased over the new year after the European Central Bank (ECB) and the Federal Reserve injected $660 billion between them into money markets. If interbank spreads continue to widen, the ECB, the Fed and other central banks may have to intervene once again.

Prevention or cure?

Given these recurrent tensions in the market, how might future liquidity shocks be prevented or, at least, coped with? The proposals in the Bank of France's symposium have two broad thrusts. The first says that central banks should get their hands dirtier during liquidity crises. Andrew Crockett, a former head of the Bank for International Settlements, thinks central banks should broaden the range of collateral they accept when they supply cash to commercial banks. This would make it easier to soothe funding pressures in money markets. It would also improve market liquidity for assets eligible as security for central-bank money, to the benefit of overall financial stability.

The second, more orthodox, proposal is for tougher regulation of banks' liquidity. Holding low-yielding liquid assets is costly for commercial banks. They are reluctant to forgo profitable lending just to protect themselves against the remote chances of a liquidity shock—especially when, in a crisis, the central bank is likely to step in with extra cash. For these reasons banks should be encouraged to consider more seriously the liquidity of their loans as well as their default risk.

There is something complementary about these two proposals. The bigger the role that central banks have in offering liquidity support, the less commercial banks need to worry about their liquidity risk—which is why tougher regulation of liquidity is required. The worry is that an overly liberal collateral regime could displace private markets and their discipline; the ECB, for instance, which accepts a broad range of collateral, is believed to have taken some undesirable securities that could not easily be funded elsewhere. The offer of liquidity insurance may influence the price of the affected private-sector assets; it would also discourage private rescuers from holding liquidity by making fire-sales less likely. Why, finally, should the state offer broad liquidity insurance: isn't that what commercial banks are for?

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*"Banque de France *Financial Stability Review*—Special issue on liquidity" (February 2008).

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Internship

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From The Economist print edition

Applications are invited for the 2008 Marjorie Deane internship. This award, financed by the Marjorie Deane Foundation, is designed to provide work experience for a promising journalist or would-be journalist, who will spend three months of the summer at *The Economist*, writing about economics and finance. Applicants may also be considered, if they wish, for an internship of similar duration at *CFO Europe*, a sister publication of *The Economist*. Applicants should send a letter introducing themselves, with an original article of no more than 650 words that they think would be suitable for publication in this section of *The Economist*. Applications should be sent by e-mail to deaneintern@economist.com or posted to the Business Affairs Editor (Deane internship), The Economist, 25 St James's Street, London, SW1A 1HG. They must reach us by April 11th.

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Physics

Wanted: Einstein Jr

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Illustration by Claudio Munoz

Something seems wrong with the laws of physics. Spacecraft are not behaving in the way that they should

MIGHTY oaks from little acorns grow. In the 1840s an astronomer called Urbain Le Verrier noticed there was something wrong with the orbit of Mercury. The main axis of the planet's orbital ellipse shifts each time it goes round the sun. That was well known, and is caused by the gravitational pull of Venus. Le Verrier, however, realised that the orbit was shifting too fast. The excess was a tiny fraction of a degree. But it was a disturbing departure from the purity of Newton's majestic clockwork—a departure that was explained only 70 years later, when Einstein's general theory of relativity swept Newton away by showing that gravity operates by distorting space itself.

Even Einstein, however, may not have got it right. Modern instruments have shown a departure from his predictions, too. In 1990 mission controllers at the Jet Propulsion Laboratory (JPL) in Pasadena, California, which operates America's unmanned interplanetary space probes, noticed something odd happen to a Jupiter-bound craft, called *Galileo*. As it was flung around the Earth in what is known as a slingshot manoeuvre (designed to speed it on its way to the outer solar system), *Galileo* picked up more velocity than expected. Not much. Four millimetres a second, to be precise. But well within the range that can reliably be detected.

Once might be happenstance. But this strange extra acceleration was seen subsequently with two other craft. That, as Goldfinger would have put it, looks like enemy action. So a team from JPL has got together to analyse all of the slingshot manoeuvres that have been carried out over the years, to see if they really do involve a small but systematic extra boost. The answer is that they do.

Altogether, John Anderson and his colleagues analysed six slingshots involving five different spacecraft. Their paper on the matter is about to be published in *Physical Review Letters*. Crucially for the idea that there really is a systematic flaw in the laws of physics as they are understood today, their data can be described by a simple formula. It is therefore possible to predict what should happen on future occasions.

Gravity's rainbow

That is what Dr Anderson and his team have now done. They have worked out the exact amount of extra speed that should be observed when they analyse the data from a slingshot last November, which involved a craft called *Rosetta*. If their prediction is correct, it will confirm that the phenomenon is real and that their formula is capturing its essence. Although the cause would remain unknown, a likely explanation is that something in the laws of gravity needs radical revision.

Dr Anderson and his team have, of course, gone through painstaking efforts to rule out conventional physical explanations and systematic errors. Their model takes into account both general relativity and all known gravitational effects of the sun, the moon, the planets and large asteroids. Effects stemming from the Earth's atmosphere, from ocean tides and from the solar wind of charged particles were all found to be too small to explain the spacecrafts' extra velocity. And to rule out computer bugs, independent groups verified the calculations using several different versions of the modelling software.

Furthermore, because the effect is present in data from five vehicles—*Galileo*, the *Cassini* mission to Saturn, the *MESSENGER* craft sent to Mercury, and the *NEAR* and *Rosetta* missions to study asteroids and comets—the team thinks it is unlikely to be caused by the spacecraft themselves. Each has a unique design, so a systematic machine-related error is unlikely.

Dr Anderson is no stranger to anomalous behaviour by spacecraft. In the early 1970s *Pioneer 10* and *Pioneer 11* were sent to fly past Jupiter and Saturn. Once their missions were accomplished, they carried on into the outer reaches of the solar system. He and his colleagues noticed soon afterwards that the sibling crafts' trajectories were deviating from those predicted by Einstein. Both *Pioneers* act as though an extra force beyond mere gravity is tugging at them from the direction of the sun.

Thirty years later, no explanation for this has been found. Each year the *Pioneers* fall a further 5,000km behind their projected paths. Hundreds of scientific papers have been written on the *Pioneer* anomalies, many of them trying to find explanations beyond the current laws of gravity.

Dr Anderson himself points out that several features of the *Pioneer* anomalies and the slingshot anomalies suggest they may have a common explanation. Both, for example, involve small objects. By contrast, the data on which Newton and Einstein built their theories were from stars, planets and moons. In addition, the spacecraft in question are all travelling in types of orbit not usually seen in natural systems. Not for them the closed ellipses of Mercury and the other planets; at the whim of their masters in Pasadena they are following much more unusual hyperbolic curves.

What it all means is not yet clear. Perhaps there is some overlooked explanation within the laws of physics. But Le Verrier thought that must be so for his discovery, too. He and later astronomers spent decades looking for the missing planet within the orbit of Mercury which, they were convinced, explained what was going on. They even gave it a name: Vulcan. But it wasn't there.

There is a good chance that modern physics is in a similar situation. It would be nice, therefore, to believe that somewhere, the contemporary equivalent of a bored patent clerk is thinking about the problem, and that when he has thought hard enough, a new reality will emerge.

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Websites

Hold the front page

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From The Economist print edition

How to replace the editor with a computer

IT IS the ultimate editorial decision: what to put on the front page and where to put it. Should pride of place go to another piece on the presidential election, because that is what everyone is excited about? Or would a story about a parrot that can do algebra be more eye-catching, because that is what nobody is expecting? Editors usually make their decisions based on simple rules of thumb, such as how many days in a row the elections have been on the front page and what subjects other newspapers are focusing on, as well as their gut feelings about whether readers will be intrigued by, say, a novel animal story.

On the web, though, the competition between popularity and novelty takes on a new dimension, because it is easy to change the choice and line-up of stories many times a day, even many times an hour. It is also easy to measure which stories are getting the most attention. So Fang Wu and Bernardo Huberman, a pair of researchers at Hewlett-Packard's laboratory in Palo Alto, California, decided to compare two strategies designed to maximise readership, one based on the previous popularity of a story, the other on its novelty. What they found is that the best strategy depends, quite sensitively, on how quickly readers tire of a new story—a result that could turn editorial decisions into a rational process, rather than an intuitive one.

Dr Wu and Dr Huberman began by choosing a clear case of a novelty-based strategy, a website called digg.com. The idea of this self-styled "digital media democracy" is that any registered user can submit a story he has found on the internet. The new submission then appears on an "Upcoming" stories web page. Other users can vote for the story by clicking on a "digg it" icon. If the submission collects enough diggs fast enough, it is promoted to the first page in its category—say science or business. If it does really well, it also makes it on to the digg.com home-page, the equivalent of a newspaper's front page. However, when its popularity fades and the digg rate decreases, it is relegated to a more obscure part of the site and replaced by a new, upwardly mobile piece.

Dr Wu and Dr Huberman began their study last year by analysing various aspects of digg.com, such as the minute-by-minute variation of diggs for over 1,000 stories. From this they developed a mathematical model which describes how the popularity of a story decays. The core of this model is a function called a stretched exponential relaxation, which is similar to the decay curve of a radioactive material. As with radioactivity, stories have a half-life—in other words a period by which half of newly promoted stories are relegated to a nether page. In the case of digg.com's home-page, that half-life is 69 minutes.

However, unlike the simple exponential that describes radioactivity, which has only one variable, a stretched exponential describes a process controlled by several independent factors. Digg rates, for example, depend on the time of day that a story is posted and the category it belongs to.

Armed with that insight, Dr Wu and Dr Huberman have now constructed a simulator to test various strategies for arranging stories. On the digg.com home-page there is space for 15 stories, and those stories are sorted in chronological order with the most recent—in other words the most novel—on top. Using their simulator, the two researchers were able to compare this strategy with others, notably one in which the stories are sorted by popularity. This means putting the story with the largest number of diggs on top. Because the number of diggs grows with time, these sorting strategies have almost the opposite effect: sorting by novelty tends to put low digg stories at the top of the page; sorting by popularity puts high digg ones there.

The Diggers and the Levellers

The simulator—a virtual world that reproduces the way people digg stories—was allowed to run with each strategy for the equivalent of a year. Measured by the total number of diggs in this period, the novelty-

based strategy for ordering stories on the home-page proved far superior to the popularity-based one. In other words, digg.com is doing the right thing. However, if the half-life is increased, the situation changes. When it rises above 350 minutes, sorting stories according to their popularity rather than their novelty generates more diggs. This switchover is mathematically analogous to phase transitions in nature, such as the way water freezes as soon as the temperature drops below 0°C.

For the average editor, that analogy might seem abstruse. But what it means in practice is that if you run a website, you would be wise to learn more about exactly how interest in your stories cools off, if you want to display those stories in a way that will entice the largest number of people to read them. You digg?

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Flooding the Grand Canyon

Wiping the slate dirty

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The Grand Canyon's fish need muddy water. They are about to get some

AP

You don't know what's going to hit you

FIRE and flood are two of humanity's worst nightmares. People have, therefore, always sought to control them. Forest fires are snuffed out quickly. The flow of rivers is regulated by weirs and dams. At least, that is how it used to be. But foresters have learned that forests need fires to clear out the brush and even to get seeds to germinate. And a similar revelation is now dawning on hydrologists. Rivers—and the ecosystems they support—need floods. That is why, on March 4th, a man-made torrent began surging down the Grand Canyon. Once running at full throttle it is expected to last for 60 hours.

Floods once raged through the canyon every year. Snow from as far away as Wyoming would melt and swell the Colorado river to a flow that averaged around 1,500 cubic metres (50,000 cubic feet) a second. Every eight years or so, that figure rose to almost 3,500 cubic metres. These floods infused the river with sediment, carved its beaches and built its sandbars.

However, in the four decades since the building of the Glen Canyon dam, just upstream of the Grand Canyon, the only sediment that it has collected has come from tiny, undammed tributaries. Even that has not been much use as those tributaries are not powerful enough to distribute the sediment in an ecologically valuable way.

This lack of flooding has harmed local wildlife. The humpback chub, for example, thrived in the rust-red waters of the Colorado. Recently, though, its population has crashed. At first sight, it looked as if the reason was that the chub were being eaten by trout introduced for sport fishing in the mid-20th century. But trout and chub co-existed until the Glen Canyon dam was built, so something else is going on.

Steve Gloss, of the United States' Geological Survey (USGS), reckons that the chub's decline is the result of their losing their most valuable natural defence, the Colorado's rusty sediment. The chub were well adapted to the poor visibility created by the thick, red water which gave the river its name, and depended on it to hide from predators. Without the cloudy water the chub became vulnerable.

And the chub are not alone. In the years since the Glen Canyon dam was built, several species have vanished altogether. These include the Colorado pikeminnow, the razorback sucker and the roundtail chub. Meanwhile, aliens including fathead minnows, channel catfish and common carp, which would have been hard put to survive in the savage waters of the undammed canyon, have moved in.

So flooding is the obvious answer. Unfortunately, it is easier said than done. Floods were sent down the Grand Canyon in 1996 and 2004 and the results were mixed. In 1996 the flood was allowed to go on too long. To start with, all seemed well. The floodwaters built up sandbanks and infused the river with sediment. Eventually, however, the continued flow washed most of the sediment out of the canyon. This problem was avoided in 2004, but unfortunately, on that occasion, the volume of sand available behind the dam was too low to rebuild the sandbanks.

This time, the USGS is convinced that things will be better. The amount of sediment available is three times greater than it was in 2004. So if a flood is going to do some good, this is the time to unleash one.

Even so, it may turn out to be an empty gesture. At less than 1,200 cubic metres a second, this flood is smaller than even an average spring flood, let alone one of the mightier deluges of the past. Those glorious inundations moved massive quantities of sediment through the Grand Canyon, wiping the slate

dirty, and making a muddy mess of silt and muck that would make modern river rafters cringe.

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Forestry

Protected by bars

Mar 6th 2008
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A groundbreaking computerised forest-protection system is up and running

Get article background

IF ALL goes according to plan, the chainsaws will start buzzing in Liberia's forests later this month for the first time since the United Nations imposed a ban on trade in the country's logs in 2003. Back then, Liberia was a byword for uncontrolled and environmentally devastating logging. Now the authorities hope to set the standard for the enforcement of forestry law, thanks to some clever new technology.

Last month the Forest Development Authority hired SGS, an inspection firm, and Helveta, a software firm, to set up a system to track all of Liberia's timber. Future forestry concessionaires will be obliged to attach a bar code to each tree they fell (and the stumps they come from). A corresponding entry in a database will record the origin, species, size and destination of the log in question. Inspectors can then scan logs at random to see if they match their description in the database. In theory, this should make it hard to forge paperwork and easy to catch those who misrepresent the amount of wood they have harvested, or where it has come from.

Several other countries have experimented with such schemes. But Liberia's is different in three important respects. First, it covers all commercial forestry—so a log without a barcode is inherently suspect. Second, it takes the decision about whether a consignment is legitimate out of the hands of inspectors in the field. They do not know what they are looking for; the system simply requires them to scan each barcode and then enter a description of the log it is attached to. If there is any discrepancy between the description in the database and that provided by the inspector, the system flags it automatically—making it much harder to bribe the inspector to turn a blind eye. Finally, when such inconsistencies arise, the system alerts the authorities directly, by e-mail or text message. In the case of a few mislabelled logs, it might summon local police and forestry officers; if a valuable shipment is about to leave port without having paid the correct taxes, it will warn the ministry of finance.

No system is infallible, of course. But the technologies available to identify the source of timber and thus weed out illegal logs are becoming ever more elaborate. Certisource, a firm based in Singapore, offers to compare the DNA of logs and the stumps they are said to have come from, to make sure no unidentified timber has slipped through the net. Most of its customers are Western retailers worried about the bad publicity an inadvertent purchase of illegal logs might bring. Those buying Liberian wood should have no such qualms.

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The credit crunch

The pendulum swings

Mar 6th 2008
From The Economist print edition

Illustration by Daniel Pudles

The first big book on the credit crunch saw the crisis coming three years ago

IN 2005, while running a financial-software company, Charles Morris became convinced that credit markets were heading for a crash. He found a publisher who was willing to take a gamble and began tracing the roots of the yet-to-unfold crisis. However up to date it may seem, this book is no rush job. Mr Morris deftly joins the dots between the Keynesian liberalism of the 1960s, the crippling stagflation of the 1970s and the free-market experimentation of the 1980s and 1990s, before entering the world of ultra-cheap money and financial innovation gone mad.

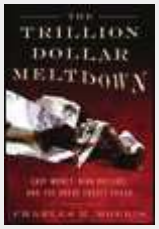
He puts the eventual bill for the financial follies of the past few years at some $1 trillion—if all the excessive leverage (or borrowing) is wound down in an orderly fashion, which he considers unlikely. Thanks to securitisation, poor-quality mortgages are marbled through the entire global credit system. And there is more to come: commercial property, credit cards, corporate debt, credit-default swaps. For the most exposed institutions, it will be death by a thousand cuts.

Changes in the structure of the markets add to the problem. Unlike commercial banks, investment banks and hedge funds tend to increase their leverage during booms and shrink it in rough times. Since these two groups now account for half of all credit, their accelerated deleveraging is likely to make the credit contraction much worse than in past cycles. Mr Morris sees hedge funds—spared the worst at the start of the crisis but now suffering as their lenders demand more collateral—as the next weak link.

He describes three trends converging to create the bubble. By 2006 the growing trend towards deregulation had pushed three-quarters of all lending outside the purview of regulators. Securitisation created a serious agency problem, leaving loan originators, who were paid up-front, with no incentive to avoid bad credits and every reason to piggyback inappropriate products onto good ones (in one particularly depressing tale, a retired postal worker whose mortgage is almost paid off is switched to an interest-only product that leaves him in danger of losing his home). Banks and rating agencies were gripped by the pretence that all finance can be calculated by risk-modelling eggheads. It did not help that many investors blindly accepted the rating agencies as a kind of "financial Supreme Court".

The story has no single villain, but Alan Greenspan comes close. Under him, the Federal Reserve fuelled the housing boom by sharply cutting the cost of short-term money. Mr Greenspan ignored warnings

The Trillion Dollar Meltdown: Easy Money, High Rollers, and the Great Credit Crash
By Charles R. Morris



PublicAffairs; 224 pages; $22.95 and £13.99

Buy it at
Amazon.com
Amazon.co.uk

about subprime excess, while eagerly championing “new paradigms”, from hybrid mortgages to credit derivatives.

By November 2007, when the narrative ends, it was already clear to Mr Morris that this crisis was much more serious than the last big crunch, the 1998 Russian debt default and the bail-out of Long-Term Capital Management, an American hedge fund, by a group of banks under the Fed's direction. “In 2008 there is no one to call a meeting, there is no conference room big enough to hold the parties, and no one knows who should be on the invitation list,” he says.

Ominously, Mr Morris sees a closer parallel in the great Japanese asset bubble of the 1980s. He worries that the extent of the problem will tempt America to paper over losses and keep sickly lenders on life-support, as Japan did. If it does, then, like Japan, it is likely to suffer a lost decade.

He offers a raft of suggestions: originators should retain the riskiest portion of securitised loans; prime brokers should stop lending to hedge funds that fail to disclose their balance sheets; trading of credit derivatives should be brought onto exchanges for the sake of safety, even if this raises costs; and some version of the old Glass-Steagall act, which separated commercial banking and capital-markets activities, should be re-introduced. Ultimately, he argues, after a quarter-century of “market dogmatism” it is time for the regulatory pendulum to swing the other way.

There are risks in any such roll-back. Mr Morris admits that even the biggest bubbles contain innovations that endure: think of collateralised mortgage obligations, which suffered a meltdown in 1994 but later transformed the industry, saving borrowers billions. However, his provocative book is, by and large, a well-aimed opening shot in a debate that will only grow louder in coming months.

The Trillion Dollar Meltdown: Easy Money, High Rollers, and the Great Credit Crash.
By Charles R. Morris.
PublicAffairs; 224 pages; $22.95 and £13.99

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India's economy

Open wide

Mar 6th 2008
From The Economist print edition

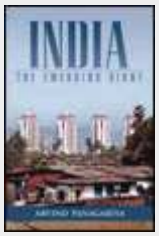
A tale to gladden the heart of economic liberals

Get article background

JUST five years ago India was bracketed with Pakistan as one side of a potential nuclear war, and its economy was seen as a hopeless also-ran in a hypothetical race for growth with China. Now India finds itself in the same Western intellectual parenthesis as China itself: both fast-growing economies, both hugely populous—and both a threat and an opportunity to the rest of the world.

For publishers, India's emergence has become something of an emerging market in its own right. There has been a deluge of books seeking to explain the country's transformation: by businessmen, diplomats, journalists, political scientists and the occasional emerging-market opportunist. What has been missing is a comprehensive single-volume chronicle of the history of economic policy in India since independence in 1947 and its role in shaping the country's fortunes.

India: The Emerging Giant
By Arvind Panagariya



Oxford University Press; 544 pages; $39.95 and £19.99

Buy it at
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Amazon.co.uk

Arvind Panagariya, an economics professor at Columbia University and former chief economist of the Asian Development Bank, has sought to fill that gap: to do for the economic history of India what Stephen Cohen did for its geopolitical role in his 2001 book, "India: Emerging Power". The basic outlines of his story are uncontroversial enough among liberal economists. But they are fiercely contested in the rambunctious democracy in which India's economic policymakers have to try to operate, and this is an important book, if, to be honest, rather ploddingly compiled.

In the simplified legend, India endured nearly 40 lost years of the "Hindu rate of growth", in which the entrepreneurial talent of its people was stifled in a futile flirtation with socialism, planning and the "licence raj". Faced with a financial crisis in 1991, Manmohan Singh, now prime minister and then finance minister, introduced sweeping liberalising reforms.

Mr Panagariya subdivides this story into four phases. In the first, under the founding prime minister, Jawaharlal Nehru, India pursued relatively liberal economic policies. Its single biggest mistake was "to ignore the critical importance of international trade for a poor developing country" and to push for import substitution. This paved the way for the disastrous second phase when "socialism strikes with a vengeance" under Nehru's daughter, Indira Gandhi. The average annual GDP growth rate fell from 4.1% in 1951-65 to 2.6% in 1965-75. With annual population growth of 2.3%, this implied a virtual standstill in living standards.

In the third phase, as Mr Panagariya sees it, the government under Mrs Gandhi and her son Rajiv, with a few piecemeal liberalising measures, simply undid some of the damage done in the previous decade, enabling the economy to regain its earlier momentum. An unprecedented growth spurt at the end of the 1980s led to a balance-of-payments crisis, Mr Singh's reforms and the subsequent boom—culminating in annual growth rates in the past three years of 9% or more.

Mr Panagariya, like many other foreign economists, regards this phase as "the triumph of liberalisation". Nothing, he argues, does more to alleviate poverty than rapid economic growth. But this is still not accepted wisdom in India, where over three-quarters of the population live on less than 20 rupees a day, the equivalent of about $0.50, and where the gap between the upwardly mobile city-dwellers and the stuck-on-the-farm poor is growing ever more visible.

Few foreign economists would disagree with the author's contention that “the solution to poverty even among farmers is to be found outside farming.” India's biggest need is for employment opportunities for the growing working-age population—the “demographic dividend” of which it likes to boast. Mr Singh certainly agrees. Yet his government, facing an election by May next year, still found it easier in last month's budget to throw money at farmers rather than continuing the fight for difficult structural reforms that might help them find something else to do.

India: The Emerging Giant.
By Arvind Panagariya.
Oxford University Press; 544 pages; $39.95 and £19.99

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Terrorism

The evil that men do

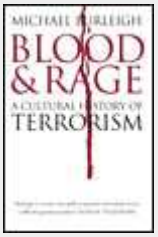
Mar 6th 2008
From The Economist print edition

A book that says much more about the terrible things that terrorists do than why they do them

DYNAMITE, said a mysterious Victorian explosive-maker known as Professor Mezzeroff, was "the best way for oppressed peoples from all countries to get free from tyranny and oppression". Mezzeroff was the inspiration for the anarchist professor who carried a bomb on his body to evade arrest in Joseph Conrad's novel, "The Secret Agent". He was much beloved by Irish revolutionaries then conducting bombings across Britain, not least on London's underground railway. More than a century later, explosives are still being detonated there, this time by human bombs of the Islamist variety.

Seeking to connect these decades of violence against London's commuters, and against many other innocents, Michael Burleigh, a British historian and newspaper columnist, argues that Islamist violence will eventually abate, just as anarchist bombs have become part of history. Indeed, he believes that al-Qaeda and its sympathisers are "ideologically vulnerable", and that the West needs to find a way of waging more resolute "cultural warfare" against jihadist ideology. America's notion of a "war on terror", he rightly says, is a nonsense. Terrorism is a tactic, not an entity; in the second world war the allies didn't declare war on the *Blitzkrieg* but on Germany.

Blood and Rage: A Cultural History of Terrorism
By Michael Burleigh



HarperPress; 545 pages; £25. To be published in America by HarperCollins in April 2009

Buy it at
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Amazon.co.uk

In "Blood and Rage", Mr Burleigh traces more than a century of political violence, from the Irish Fenians to the national struggles of the Jews, the Palestinians and the Algerians. He analyses the Marxist-inspired violence of the "guilty white kids" of Italy's Red Brigades and Germany's Red Army Faction, and traces the global rage of today's Islamists. Along the way, Mr Burleigh offers some memorable vignettes and illuminating observations. One would expect nothing less from a respected historian of the Third Reich and, more recently, the author of two acclaimed books on religion and politics.

That said, "Blood and Rage" is a disappointment. Mr Burleigh discards his academic gown and becomes more his other self, an acerbic columnist. Sarcasm and disdain may work in a 500-word opinion piece in a newspaper but they become tedious over 500 pages of a book. Mr Burleigh says his "cultural history" focuses on the lives of terrorists and their gruesome deeds partly to "demystify and deglamorise" terrorist violence. But the effect is akin to watching a B-movie: too much shrieking and tomato ketchup to elicit real horror. Moreover, the reader is needlessly distracted by Mr Burleigh's sniping at journalists, academics, human-rights lawyers and other members of the "liberal elite" that, in his view, abets extremism.

All this makes for a messy, unbalanced account of violent acts too often bereft of their political and ideological context. Mr Burleigh, for instance, dedicates roughly the same amount of space to the life and doings of a single Hamas bomb-maker, Yehiya Ayyash, who was killed by Israel with a cleverly engineered exploding mobile telephone, as to the long and bloody Algerian civil war that has cross-pollinated al-Qaeda. He explains the tactical advantages of suicide-bombing—greater accuracy, simplified planning and a more powerful political message—but does not then say why such tactics appeared comparatively late in the long history of terrorism. What was the cultural process, for example, by which the taboo against suicide in Islam came to be seen as an act of heroism by many Muslims?

For all his talk of the need to defend the West's democratic ideals and legal norms, Mr Burleigh regards America's treatment of terrorism suspects as little more than a "PR disaster". Those seeking to understand modern terrorism should turn to Mr Burleigh's bibliography and pick out some of the better works: perhaps "Jihad" by Gilles Kepel or "The Looming Tower" by Lawrence Wright.

Blood and Rage: A Cultural History of Terrorism.
By Michael Burleigh.
HarperPress; 545 pages; £25. To be published in Americaby HarperCollins in April 2009

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Amazon worldwide bestsellers

Win-win-Winfrey

Mar 6th 2008
From The Economist print edition

Book sales feel the Oprah effect, as never before

LAST year Oprah Winfrey's hit book was "The Secret" by Rhonda Byrne, who claimed to know all about the secret of life. Now the chat-show host has a new guru, a German-born, self-taught Vancouver resident named Eckhart Tolle.

Ms Winfrey keeps Mr Tolle's self-help manual, "The Power of Now", in a pile by her bed, which may have helped boost its sales in 33 languages. But that is nothing beside the effect she has had on his latest book.

On January 31st Ms Winfrey picked "A New Earth" for the Oprah Book Club and announced at the same time that on March 3rd she and Mr Tolle would begin an extensive internet "webinar". The course urges readers to "leave behind an ego-based consciousness and open themselves up to a new reality". The seminar runs for ten weeks and is free.

Having sold half a million copies of "A New Earth" in the three years since it came out, Penguin, its publisher, is now printing 1m copies a week to meet demand. Expect its profit margins to top 10% this year. Now that's power.

Bestselling non-fiction

1. A New Earth: Awakening to Your Life's Purpose
by Eckhart Tolle

Click to buy from Amazon.com or Amazon.co.uk

2. Delia's How to Cheat at Cooking
by Delia Smith

Click to buy from Amazon.com or Amazon.co.uk

3. Three Cups of Tea: One Man's Mission to Promote Peace...One School at a Time
by Greg Mortenson and David Oliver Relin

Click to buy from Amazon.com or Amazon.co.uk

4. The Secret
by Rhonda Byrne

Click to buy from Amazon.com or Amazon.co.uk

5. Eat, Pray, Love: One Woman's Search for Everything Across Italy, India and Indonesia
by Elizabeth Gilbert

Click to buy from Amazon.com or Amazon.co.uk

6. Jamie at Home: Cook Your Way to the Good Life
by Jamie Oliver

Click to buy from Amazon.com or Amazon.co.uk

7. StrengthsFinder 2.0: A New and Upgraded Edition of the Online Test from Gallup's "Now, Discover Your Strengths"
by Tom Rath

Click to buy from Amazon.com or Amazon.co.uk

8. Eat This Not That: Thousands of Simple Food Swaps That Can Save You 10, 20, 30 Pounds–or More!
by David Zinczenko

Click to buy from Amazon.com or Amazon.co.uk

9. FairTax: The Truth–Answering the Critics
by Neal Boortz and John Linder

Click to buy from Amazon.com or Amazon.co.uk

10. Liberal Fascism: The Secret American Left, From Mussolini to the Politics of Meaning
by Jonah Goldberg

Click to buy from Amazon.com or Amazon.co.uk

Source: Global sales from Amazon.com, Amazon.co.uk, Amazon.ca, Amazon.de, Amazon.fr and Amazon.jp from February 1st to 29th

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Physics

Facts from fiction

Mar 6th 2008
From The Economist print edition

"WHEN a distinguished but elderly scientist states that something is possible, he is almost certainly right. When he states that something is impossible, he is very probably wrong." So runs Arthur C. Clarke's first law of prediction. Michio Kaku's latest book, "Physics of the Impossible", aims to explain exactly why some visions of the future may eventually be realised while others are likely to remain beyond the bounds of possibility. It concludes that there is little in science fiction that could not, in principle, be realised.

Recent scientific progress means that ever more imaginative scenarios have begun to look feasible. A sensor that has been implanted in the brains of paraplegics and which enables its recipients to move a wheelchair constitutes a limited form of telekinesis. Physicists have achieved a form of teleportation by using a property from the weird world of quantum physics to transport the information contained in a gas of caesium atoms, destroying the original and creating a copy on the other side of the laboratory. Even invisibility now looks almost possible using a new type of material that can direct light to flow around an object as though it were not there. Almost nothing, it seems, is impossible.

Mr Kaku, a California-born theoretical physicist, divides his "impossibilities" into three classes. The first includes telekinesis, teleportation and invisibility, which Mr Kaku thinks may be fully realised within a century. The second class contains concepts that do not violate the laws of physics but which are not well understood. Hyperspace travel using hidden dimensions that have yet to be sensed would fall into this category. Mr Kaku reckons these are thousands to millions of years away. The third class is for ideas that are impossible because they violate the laws of physics. It is surprisingly empty. Mr Kaku identifies just perpetual-motion machines and clairvoyance as being truly beyond the realm of possibility.

Mr Kaku makes a good stab at explaining difficult physics. But his grasp of his subject is perhaps trumped by his knowledge of science fiction. References to episodes of "Star Trek" litter the text. These are interspersed with anecdotes of swindles by conmen whose "impossible" feats were mere tricks, with stories of how even distinguished thinkers have been wrong and with tales of how, over time, the seemingly far-fetched was made to come ever closer.

The moral issues concerned with the use of futuristic technology also get a mention. Being able to read a person's thoughts using an implant, for example, raises the possibility of being able to write a person's thoughts for them. Teleportation involves creating a copy while destroying the original. Would the clone be considered the same person as the original who disappeared? What would happen if the original survived?

Science fiction often explores such questions; science falls silent at this point. Mr Kaku's work helps to fill a void.

Physics of the Impossible: A Scientific Exploration of the World of Phasers, Force Fields, Teleportation, and Time Travel.
By Michio Kaku.
Doubleday; 352 pages; $26.95. Allen Lane; £20

Physics of the Impossible: A Scientific Exploration of the World of Phasers, Force Fields, Teleportation, and Time Travel
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Doubleday; 352 pages; $26.95. Allen Lane; £20

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Titian's late period

Worth waiting for

Mar 6th 2008 | VENICE
From The Economist print edition

Far from being an old man's doodles, Titian's late paintings are among his finest

TITIAN'S late style inspired Rembrandt, Rubens and Velázquez. It is regarded today as the apogee of sensual, expressive painting, possessing an abstract, impressionistic brushwork that was centuries ahead of its time. Yet in his own age, it was said that the Venetian artist was forced to use his fingers to blend colour on the canvas because he could no longer hold a brush. He was mocked as an old man who made "patchy pictures"—*pittura a macchia.*

But is it possible that Titian painted like this on purpose, using his failing eyesight and trembling hands as a cover to experiment with layered colour and a more open and fluid brushwork that lent greater movement, emotional depth and animation to his figures?

Such are the questions that intrigue Sylvia Ferino-Pagden, a curator at Vienna's Kunsthistorisches Museum and one of the organisers of an exhibition in Venice of Titian's late work. This gathering of 28 masterpieces borrowed mostly from museums across Europe provides a glimpse of the mystery of Titian's late paintings. They confirm him as one of the first modern artists, whose avant-garde approach to painting brought ideas such as expressionism and impressionism into art centuries before the words existed to describe them. As Ms Ferino-Pagden points out, Titian started painting like this when he was 60 and at the height of his powers. "At this late stage in his life", she says, "he developed his most dramatic paintings with a completely new style and artistic vision."

Titian's longevity—he is believed to have been 80 when he died in 1576—was considered a miracle in an age when most people died before they were 40. His late style began around 1549 when he met the young future King Philip II. Prince and painter were both interested in Ovid's "Metamorphoses" and in how art could express the erotic and literary ideas of antiquity, whose recently translated literature was the source of much intellectual excitement.

Philip's interest provided a great spur, inspiring Titian to create an astonishing cycle of erotic mythological paintings based on ancient poetry. Although he had previously painted erotic nudes for aristocratic patrons, the new work he created for Philip was more sensual and life-like than anything he had done before. Only a king who did not fear public opinion or papal scorn could have accepted such daring works as "Danae", in which Zeus seduces a nymph with a shower of gold coins.

Some might see these fleshy nudes as sophisticated soft porn. But there is a more high-minded side. Women then symbolised everything that was beautiful in art, so these works were love poems in paint, proof of the artist's power of creation.

As Philip aged, however, he felt the weight of the Counter-Reformation. He commissioned religious paintings rather than openly erotic works. Although Titian continued to send pictures to Philip, he was increasingly interested in life and death, and in the injustice and cruelty found in ancient myth and in religion. Like J.M.W. Turner, Ludwig van Beethoven and other artists famous for their "sketchy" late styles, Titian's final works reveal the artist's spiritual power, his ability to abstract the essentials of life and transfer them into art with pathos and expressiveness.

No painting shows this more clearly than "The Flaying of Marsyas", which is hung to great effect alongside "La Pietà", the final work in the show. Although "Marsyas" may appear unfinished, Ms Ferino-Pagden argues that the fact that it is signed means Titian intended its blurred, abstract effects. This image of Apollo flaying the satyr alive for having presumed to play the flute better than him can be seen as an image of the artistic rivalry between Florentine drawing (symbolised by Apollo, beloved by Florentine artists) and Venetian colour. While the god of art and reason is cruelly drawing Marsyas's flesh with a knife, fresh blood keeps pouring forth, blurring his lines. The artist, in a self-portrait within the main picture, looks on at this horror, which is itself a reflection of man's inability to control the chaos of

life which oozes out—not in pure colours and polished tones but in a muddy stream of flesh and blood. Far from being the ramblings of an old man, Titian's late pictures are among his most accomplished.

"Late Titian and the Sensuality of Painting" is at the Gallerie dell'Accademia in Venice until April 20th

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Correction: Roman love affair

Mar 6th 2008
From The Economist print edition

In our review of Helen Dunmore's novel, "Counting the Stars" ("To love and to hate", February 23rd), we situated Catullus's love affair with Clodia Metelli in the "dying days of the Roman empire". We should really have written, in the "dying days of the Roman republic". Our apologies.

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The Creature from the Black Lagoon

Mar 6th 2008
From The Economist print edition

Universal

The Creature from the Black Lagoon, otherwise known as Ben Chapman, died on February 21st, aged 79

THE monsters created by Universal Studios in the first half of the 20th century evolved in a backwards fashion. In the 1920s *Homo erectus* distorted himself a bit, and took to swinging round church towers or chandeliers as the Phantom of the Opera and the Hunchback of Notre Dame. A decade later his teeth and hair grew longer and his skin more chalky, preparatory to wallowing in human blood in "Dracula" and "Frankenstein". The 1940s brought a coating of fur ("Wolfman") or shrouds ("The Mummy"), the humanoid shape regressing to animal or worse. Then, in 1954, a beast who was half-man and half-fish dragged himself out of the sea.

"Science couldn't explain it!" cried the theatre-trailer for "Creature from the Black Lagoon". "But there it was, alive!" Its webbed tracks were seen on the shores of the deepest Amazon; a fossilised claw was found by scientists. This "Gill-Man", like the lungfish, could evidently breathe on both land and water. It was a relic of the Devonian age, one-and-a-half million years ago. Universal could attest that its blood was 35% white corpuscles, like an amphibian's; that it ate fish, when film crews were unavailable; and that beneath its outer layer of scales, dark green picked out with copper and rough-hewn as an alligator's, was soft pink mammalian skin.

Beneath it too, sweating like a trooper in a thick body-stocking of foam rubber, was Ben Chapman. Behind the popping-out eyes, his own were moving—save when the lids came down, and he had to be guided down his monstrous paths by a prop-man with a torch. The truly nasty fluttering of the gills was achieved by another man, out of shot, pumping air through a tube into bladders on Mr Chapman's dorsal fin. He moved as he did, slowly and half-gliding while cymbals and screaming trumpets announced his presence, because he had ten pounds of weights in each webbed foot. His career as a strong-limbed Tahitian dancer in the nightclubs of Los Angeles had not entirely cut him out for this.

His monster-suit, which was to give him a persona he revelled in all his life, cost $18,000 and went through 76 designs. Two or three hours were needed to put the costume on, and as long to get it off again. Head, arms, legs, front torso and back torso had been moulded separately round his body in plaster of Paris and were now fitted separately to him, like a knight's armour. Only the head and the hands were easily removable, and in this garb (in which he could not sit down) he would eat his sandwiches at lunchtime.

For much of the day, however, being so hot, he would lurk in the greenish pool in the back lot at Universal. Out in the middle of the water, he would submerge his imposing frame until only his Gill-Man eyes and nostrils showed above the surface. There he would wait, holding his breath for as long as he

could manage. Then—famously just as Rock Hudson was walking past with a group of elderly visitors—he would rise straight up, water streaming down him, lift up his arms, open his fish mouth and ROAR!!!

In Karloff's footsteps

Mr Chapman was not the only man who played the Creature. Its underwater swimming was done by Ricou Browning in relatively pristine Florida waters. But Mr Chapman was the only actor hired, on a studio contract for $300 a week, to get inside the Creature's mind. He therefore knew that, as in the case of Victor Hugo's Hunchback and Mary Shelley's Monster, a great sadness lay there. Jack Arnold, the director (also of "Tarantula" and "It Came from Outer Space"), insisted when he hired him that this was no cartoon. Mr Chapman, with no words to say, therefore used his dancer's body language to show how misunderstood the Creature was.

In the film, scientists invaded the Creature's peaceable kingdom; so naturally he saw them off. In the film he also fell in love with Kay Lawrence (Julia Adams), a comely young woman scientist in a white swimsuit, whom Mr Chapman much enjoyed carrying round in his brawny, scaly arms. The Creature's urge to mate was understandable. He was the last survivor of the fish-men, just as Mr Chapman turned out to be the last in a line of sad-monster-players that stretched back through Bela Lugosi and Boris Karloff, before more heartless and mechanised species arrived in Hollywood.

In the years before he played him, Mr Chapman had also been a bartender and a brave marine in Korea; in the years after, he worked in property and in a Seven-Up bottling plant. In old age, large, gentle and smiling, he was a fixture at celebrity signings. No other job, he said, compared with those six or seven weeks spent shooting, when he would drive eagerly over the Hollywood hills to that stifling costume again.

He was never credited with playing the Creature, the publicity department not wanting people to think that this was just a man in a suit. (Earlier, Boris Karloff had got no credit for playing Frankenstein's Monster.) Mr Chapman said he doubted audiences were so stupid. He was told, "You'd be amazed what people will believe." Such as that when he climbed onto the scientists' boat, out of the black water, his eyes burning at the sight of a female butt in shorts, he represented all mankind in its fishy origins, evolving out of the deep.

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Overview

Mar 6th 2008
From The Economist print edition

Consumer prices in the **euro area** rose by 3.2% in the year to February, according to a preliminary estimate. Retail trade perked up in January, rising by 0.4% after three months of falling sales.

Canada's central bank lowered its key interest rate from 3% to 3.5%. Canadian GDP rose by a sluggish 0.2% in the final quarter of 2007, held back by a big fall in exports.

The **Reserve Bank of Australia** raised its benchmark interest rate by 0.25 percentage points, to 7.25%, the highest rate in almost 12 years. Australia's GDP rose by 0.6% in the fourth quarter, leaving it 3.9% higher than a year earlier.

In **America** the Institute for Supply Management's (ISM) manufacturing index fell from 50.7 to 48.3 in February. By contrast, the ISM index of non-manufacturing activity rose from 44.6 to 49.3.

Consumer prices in **Japan** rose by 0.7% in the year to January.

Switzerland's GDP rose by 1.0% in the fourth quarter, boosted by strong domestic demand. Swiss consumer-price inflation was 2.4% in February.

Analysts have revised up their 2008 inflation forecasts for America and the euro area, according to *The Economist*'s **monthly poll of forecasters** (see poll). Seers are gloomier about this year's outlook for GDP growth in both economies.

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Output, prices and jobs

Mar 6th 2008
From The Economist print edition

Output, prices and jobs

% change on year ago

	Gross domestic product				Industrial production	Consumer prices			Unemployment
	latest	qtr*	2008†	2009†	latest	latest	year ago	2008†	rate‡, %
United States	+2.5 Q4	+0.6	+1.5	+2.2	+2.3 Jan	+4.3 Jan	+2.1	+3.2	4.9 Jan
Japan	+2.0 Q4	+3.7	+1.4	+1.6	+2.5 Jan	+0.7 Jan	nil	+0.6	3.8 Jan
China	+11.2 Q4	na	+9.9	+9.5	+17.4 Dec	+7.1 Jan	+2.2	+4.0	9.5 2007
Britain	+2.9 Q4	+2.3	+1.9	+2.0	+0.7 Dec	+2.2 Jan§	+2.7	+2.4	5.2 Dec††
Canada	+2.9 Q4	+0.8	+1.7	+2.2	−1.3 Dec	+2.2 Jan	+1.1	+1.9	5.8 Jan
Euro area	+2.2 Q4	+1.6	+1.7	+1.8	+1.3 Dec	+3.2 Feb	+1.8	+2.5	7.1 Jan
Austria	+3.3 Q4	+2.9	+2.5	+2.3	+3.4 Dec	+3.3 Jan	+1.6	+2.1	4.2 Jan
Belgium	+2.4 Q4	+2.0	+1.9	+1.9	−1.9 Dec	+3.6 Feb	+1.8	+2.4	10.9 Jan‡‡
France	+2.0 Q4	+1.2	+1.6	+1.7	+1.4 Dec	+2.8 Jan	+1.2	+2.2	7.5 Q4§§
Germany	+1.8 Q4	+1.1	+1.7	+1.9	+4.4 Dec	+2.8 Feb	−6.0	+2.1	8.0 Feb
Greece	+3.6 Q4	+2.9	+2.4	+2.6	+0.8 Dec	+3.9 Jan	+2.7	+3.3	7.6 Nov
Italy	+1.9 Q3	+1.7	+1.0	+1.4	−6.4 Dec	+2.9 Feb	+1.8	+2.4	5.9 Q3
Netherlands	+4.4 Q4	+4.7	+2.3	+2.1	+10.2 Dec	+2.2 Feb	+1.5	+2.0	4.1 Jan††
Spain	+3.5 Q4	+3.2	+2.4	+2.1	−0.2 Jan	+4.3 Jan	+2.4	+3.5	8.8 Jan
Czech Republic	+6.9 Q4	na	+4.7	+5.4	+2.9 Dec	+7.5 Jan	+1.3	+5.7	6.1 Jan
Denmark	+2.0 Q4	+1.8	+1.6	+1.8	−1.8 Jan	+2.9 Jan	+1.8	+2.2	2.1 Jan
Hungary	+0.7 Q4	+0.8	+2.8	+3.6	+5.3 Dec	+7.1 Jan	+7.8	+4.7	8.1 Jan††
Norway	+5.2 Q4	+5.2	+2.9	+2.6	−1.9 Dec	+3.7 Jan	+1.2	+3.1	2.4 Dec††
Poland	+6.1 Q4	na	+5.1	+4.3	+10.8 Jan	+4.3 Jan	+1.6	+3.6	11.7 Jan‡‡
Russia	+7.7 Q3	na	+6.7	+5.7	+4.8 Jan	+12.7 Feb	+7.6	+11.5	5.7 Jan‡‡
Sweden	+2.8 Q4	+3.1	+2.6	+2.5	+1.2 Dec	+3.2 Jan	+1.9	+2.6	6.4 Jan‡‡
Switzerland	+3.6 Q4	+4.2	+2.0	+1.9	+10.7 Q3	+2.4 Jan	+0.1	+1.6	2.5 Jan
Turkey	+1.5 Q3	na	+3.7	+5.4	−1.4 Dec	+9.1 Feb	+10.2	+8.2	10.1 Q4‡‡
Australia	+3.9 Q4	+2.4	+3.3	+3.2	+1.6 Q3	+3.0 Q4	+3.3	+3.1	4.1 Jan
Hong Kong	+6.7 Q4	+6.6	+4.0	+4.6	−2.1 Q3	+3.3 Jan	+2.0	+3.7	3.4 Jan††
India	+8.4 Q4	na	+7.5	+7.2	+7.6 Dec	+5.5 Oct	+6.7	+5.8	7.2 2007
Indonesia	+6.3 Q4	na	+6.1	+5.7	+1.6 Dec	+7.4 Feb	+6.3	+6.4	9.8 Feb
Malaysia	+7.3 Q4	na	+5.5	+5.7	+5.9 Dec	+2.3 Jan	+3.2	+2.8	3.1 Q3
Pakistan	+7.0 2007**	na	+5.4	+5.4	+4.7 Nov	+11.9 Jan	+6.6	+7.9	6.2 2006
Singapore	+5.4 Q4	−4.8	+4.5	+4.7	+6.9 Jan	+6.6 Jan	+0.2	+3.0	1.6 Q4
South Korea	+5.5 Q4	+6.3	+4.4	+4.4	+11.8 Jan	+3.6 Feb	+2.2	+2.9	3.0 Jan
Taiwan	+6.4 Q4	na	+4.5	+4.3	+12.3 Jan	+3.9 Feb	−2.2	+1.7	4.0 Jan
Thailand	+5.7 Q4	+7.3	+4.7	+4.0	+12.5 Jan	+5.4 Feb	+2.3	+3.2	0.8 Dec
Argentina	+8.7 Q3	+11.7	+5.5	+4.5	+12.9 Jan	+8.2 Jan	+9.7	+11.4	7.5 Q4‡‡
Brazil	+5.7 Q3	+6.9	+4.3	+4.0	+8.5 Jan	+4.6 Jan	+3.0	+4.5	8.0 Jan‡‡
Chile	+4.1 Q3	−2.5	+4.0	+4.3	+4.4 Jan	+8.1 Feb	+2.7	+6.2	7.2 Jan†††‡
Colombia	+6.6 Q3	+6.9	+4.5	+4.0	+8.7 Dec	+6.4 Feb	+5.3	+5.3	9.9 Dec‡‡
Mexico	+3.8 Q4	+3.0	+1.9	+3.0	+1.3 Dec	+3.7 Jan	+4.0	+4.1	4.1 Jan‡‡
Venezuela	+8.5 Q4	na	+5.0	+3.7	+7.2 Oct	+25.2 Feb	+20.4	+24.0	6.7 Q4‡‡
Egypt	+8.1 Q4	na	+7.4	+6.9	+7.5 2007**	+10.5 Jan	+12.4	+9.8	8.8 Q3‡‡
Israel	+6.8 Q4	+6.4	+3.7	+4.2	+4.0 Dec	+3.5 Jan	+0.1	+2.8	6.8 Q4
Saudi Arabia	+4.3 2006	na	+6.0	+5.6	na	+7.0 Jan	+3.6	+7.5	na
South Africa	+4.6 Q4	+5.3	+4.2	+5.4	+0.3 Dec	+9.3 Jan	+6.0	+6.8	25.5 Mar‡‡
MORE COUNTRIES Data for the countries below are not provided in printed editions of *The Economist*									
Estonia	+4.5 Q4	na	+4.3	+4.7	+4.1 Jan	+11.0 Jan	+5.1	+8.2	5.3 Dec
Finland	+3.7 Q4	+3.8	+3.1	+2.8	+2.6 Dec	+3.8 Jan	+2.3	+2.0	6.4 Jan
Iceland	+4.3 Q3	+4.0	+2.0	+3.3	+7.6 2006	+6.8 Feb	+7.4	+5.0	1.0 Jan‡‡
Ireland	+4.1 Q3	+5.6	+2.4	+2.6	+0.8 Dec	+4.3 Jan	+5.2	+3.0	4.9 Jan
Latvia	+9.6 Q4	na	+5.8	+6.0	−0.1 Jan	+15.8 Jan	+7.1	+10.5	5.4 Dec
Lithuania	+7.9 Q4	−4.3	+7.2	+6.4	na	+9.9 Jan	+4.0	+7.0	4.6 Jan‡‡
Luxembourg	+5.6 Q3	+2.8	+4.3	+4.5	−1.4 Nov	+3.3 Jan	+2.3	+2.5	4.6 Jan‡‡
New Zealand	+3.4 Q3	+1.1	+2.0	+2.7	+1.3 Q3	+3.2 Q4	+2.6	+2.8	3.4 Q4
Peru	+9.9 Dec	na	+6.1	+6.7	+6.5 Dec	+4.8 Feb	+0.4	+2.7	7.0 Dec‡‡
Philippines	+7.3 Q4	+7.4	+5.3	+5.3	−1.8 Dec	+5.4 Feb	+2.6	+3.7	6.3 Q4‡‡
Portugal	+2.0 Q4	+2.4	+1.8	+2.1	−1.4 Jan	+2.9 Jan	+2.6	+2.3	7.8 Q4‡‡
Slovakia	+14.3 Q4	na	+7.0	+5.7	+14.2 Dec	+3.8 Jan	+3.0	+3.0	8.1 Jan††
Slovenia	+6.3 Q3	na	+4.8	+4.0	nil Dec	+6.5 Feb	+2.1	+3.6	7.3 Dec‡‡

*% change on previous quarter, annual rate. †*The Economist* poll or Economist Intelligence Unit estimate/forecast. ‡National definitions. §RPI inflation rate 4.1% in Jan. **Year ending June. ††Latest three months. ‡‡Not seasonally adjusted. §§New series.

Sources: National statistics offices and central banks; Thomson Datastream; Reuters; Centre for Monitoring Indian Economy; OECD; ECB

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The Economist commodity-price index

Mar 6th 2008
From The Economist print edition

The Economist commodity-price index

2000=100

	Feb 26th	Mar 4th*	% change on one month	% change on one year
Dollar index				
All items	258.3	271.9	+13.7	+45.0
Food	257.2	268.0	+10.9	+70.6
Industrials				
All	259.6	276.9	+17.4	+21.9
Nfa†	197.3	202.3	+8.8	+32.6
Metals	293.7	317.7	+20.7	+18.7
Sterling index				
All items	198.6	207.6	+12.5	+40.5
Euro index				
All items	160.5	165.0	+9.3	+24.7
Gold				
$ per oz	942.95	965.55	+8.4	+50.4
West Texas Intermediate				
$ per barrel	101.03	99.93	+13.2	+64.6

*Provisional †Non-food agriculturals.

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The Economist poll of forecasters, March averages

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From The Economist print edition

The Economist poll of forecasters, March averages (previous month's, if changed)

	Real GDP, % change Low/high range		Real GDP, % change average		Consumer prices % increase		Current account % of GDP	
	2008	2009	2008	2009	2008	2009	2008	2009
Australia	2.5/4.5	2.5/4.3	3.3 (3.5)	3.2 (3.3)	3.1	2.7	-5.6 (-5.4)	-5.4
Belgium	1.5/2.7	1.8/2.3	1.9	1.9 (2.0)	2.4 (2.3)	1.9	2.0 (2.5)	2.2 (2.3)
Britain	1.5/3.1	1.7/2.5	1.9 (1.7)	2.0 (2.1)	2.4 (2.3)	2.0	-3.8 (-3.7)	-3.4 (-3.3)
Canada	1.0/2.5	1.5/2.6	1.7	2.2 (2.4)	1.9 (1.8)	2.0	0.4 (0.3)	nil (-0.1)
France	1.3/2.1	1.2/2.2	1.6 (1.7)	1.7 (1.9)	2.2	1.7 (1.8)	-1.3 (-1.4)	-1.4 (-1.5)
Germany	1.4/2.5	1.4/2.3	1.7 (1.8)	1.9 (2.0)	2.1	1.7	5.2 (5.7)	5.2 (5.7)
Italy	0.7/1.7	1.0/2.0	1.0 (1.2)	1.4 (1.5)	2.4	1.9 (2.0)	-2.3 (-2.4)	-2.3
Japan	1.0/2.1	0.9/2.2	1.4 (1.3)	1.6 (1.8)	0.6	0.5 (0.6)	4.7 (4.8)	4.8 (5.0)
Netherlands	1.4/3.5	1.6/2.9	2.3 (2.0)	2.1	2.0 (2.1)	2.1	6.8 (7.3)	6.6 (7.2)
Spain	1.8/3.8	0.9/3.0	2.4	2.1 (2.4)	3.5 (3.2)	2.6 (2.7)	-9.1 (-9.0)	-8.3 (-8.2)
Sweden	2.2/3.3	1.8/3.1	2.6	2.5 (2.6)	2.6 (2.8)	2.2	6.1 (6.0)	6.1 (6.2)
Switzerland	1.5/2.8	1.6/2.2	2.0	1.9 (2.0)	1.6	1.2	14.6 (14.7)	14.9
United States	0.8/2.2	1.1/3.0	1.5 (1.6)	2.2 (2.5)	3.2 (2.9)	2.3 (2.2)	-4.7 (-4.8)	-4.3 (-4.4)
Euro area	1.3/2.6	1.3/2.3	1.7 (1.8)	1.8 (1.9)	2.5 (2.4)	2.0	-0.1	nil -0.1 (0.1)

Sources: ABN AMRO, BNP Paribas, Citigroup, Decision Economics, Deutsche Bank, Economist Intelligence Unit, Goldman Sachs, HSBC Securities, KBC Bank, JPMorgan Chase, Morgan Stanley, Scotiabank, UBS

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Trade, exchange rates, budget balances and interest rates

Mar 6th 2008
From The Economist print edition

Trade, exchange rates, budget balances and interest rates

	Trade balance* latest 12 months, $bn	Current-account balance latest 12 months, $bn	Current-account balance % of GDP 2008†	Currency units, per $ Mar 5th	Currency units, per $ year ago	Budget balance % of GDP 2008†	Interest rates, % 3-month latest	Interest rates, % 10-year gov't bonds, latest
United States	−815.6 Dec	−752.4 Q3	−4.7	–	–	−2.5	2.64	3.69
Japan	+105.6 Dec	+212.8 Dec	+4.7	104	117	−2.4	0.74	1.35
China	+265.2 Jan	+249.9 2006	+10.7	7.11	7.74	0.2	4.50	4.37
Britain	−175.1 Dec	−129.4 Q3	−3.8	0.50	0.52	−3.2	5.76	4.47
Canada	+45.9 Dec	+12.5 Q4	+0.4	0.99	1.18	0.6	2.90	3.71
Euro area	+39.0 Dec	+18.9 Dec	−0.1	0.65	0.76	−1.0	5.02	3.86
Austria	+0.3 Dec	+11.3 Q3	+2.7	0.65	0.76	−0.7	4.40	4.04
Belgium	+16.2 Dec	+13.3 Sep	+2.0	0.65	0.76	−0.6	4.46	4.26
France	−53.8 Dec	−33.8 Dec	−1.3	0.65	0.76	−2.9	4.40	4.08
Germany	+257.8 Dec	+223.2 Dec	+5.2	0.65	0.76	0.6	4.40	3.86
Greece	−55.2 Nov	−48.3 Dec	−12.0	0.65	0.76	−2.7	4.40	4.43
Italy	−12.8 Dec	−45.2 Dec	−2.3	0.65	0.76	−2.6	4.40	4.43
Netherlands	+57.0 Dec	+50.1 Q3	+6.8	0.65	0.76	0.3	4.40	4.12
Spain	−136.0 Dec	−136.9 Nov	−9.1	0.65	0.76	nil	4.40	4.21
Czech Republic	+453.8 Jan	−5.4 Dec	−3.8	16.4	21.4	−2.6	3.97	4.53
Denmark	+3.8 Dec	+3.2 Dec	+1.8	4.88	5.67	2.8	4.80	4.03
Hungary	−0.4 Dec	−6.8 Q3	−6.0	172	192	−4.1	7.99	8.20
Norway	+60.8 Jan	+64.1 Q4	+15.8	5.14	6.20	17.9	6.11	4.32
Poland	−12.1 Dec	−15.5 Dec	−4.1	2.31	2.96	−1.7	5.95	5.98
Russia	+132.1 Dec	+76.6 Q4	+4.3	24.0	26.2	1.2	10.25	6.48
Sweden	+17.7 Jan	+38.1 Q4	+6.1	6.13	7.05	2.2	4.21	4.00
Switzerland	+11.6 Jan	+69.6 Q3	+14.6	1.04	1.22	0.6	2.81	2.92
Turkey	−64.5 Jan	−38.0 Dec	−7.4	1.21	1.43	−2.9	16.48	6.35‡
Australia	−19.7 Jan	−56.4 Q4	−5.6	1.07	1.29	1.5	7.95	6.16
Hong Kong	−23.9 Jan	+27.0 Q3	+7.0	7.79	7.82	3.8	2.34	2.63
India	−75.4 Jan	−10.9 Q3	−2.3	40.3	44.5	−3.2	7.42	7.90
Indonesia	+40.1 Jan	+10.3 Q3	+2.5	9,089	9,210	−1.8	8.08	6.66‡
Malaysia	+30.1 Jan	+28.7 Q3	+13.9	3.18	3.51	−3.1	3.62	3.23‡
Pakistan	−16.1 Jan	−8.4 Q4	−6.9	62.8	60.7	−5.1	10.09	9.23‡
Singapore	+34.5 Jan	+39.1 Q4	+25.3	1.39	1.53	nil	1.50	2.35
South Korea	+8.8 Feb	+3.8 Jan	+0.5	948	949	0.2	5.18	5.13
Taiwan	+16.3 Jan	+31.7 Q4	+5.0	30.9	33.0	−1.6	2.60	2.37
Thailand	+10.9 Jan	+15.0 Jan	+2.2	31.6	32.8	−2.1	3.28	3.72
Argentina	+11.9 Jan	+6.8 Q3	+2.0	3.15	3.10	1.2	10.25	na
Brazil	+36.5 Feb	−1.2 Jan	−0.4	1.67	2.11	−1.8	11.17	6.16‡
Chile	+23.7 Jan	+6.7 Q3	+4.0	448	537	5.3	6.36	3.76‡
Colombia	−0.8 Dec	−5.2 Q3	−4.3	1,866	2,218	−1.6	9.63	5.85‡
Mexico	−11.6 Jan	−7.4 Q4	−1.5	10.7	11.1	nil	7.42	7.46
Venezuela	+23.7 Q4	+20.0 Q4	+7.3	4.83	4.23§	−2.6	12.11	6.55‡
Egypt	−20.5 Q4	+0.5 Q1	+0.9	5.47	5.71	−7.0	5.10	5.13‡
Israel	−10.7 Jan	+5.9 Q3	+1.3	3.60	4.22	−1.4	3.56	5.20
Saudi Arabia	+146.6 2006	+98.9 2006	+22.8	3.75	3.75	12.8	3.00	na
South Africa	−10.0 Jan	−19.9 Q3	−8.0	7.76	7.40	0.6	11.40	9.11
MORE COUNTRIES	Data for the countries below are not provided in printed editions of *The Economist*							
Estonia	−4.5 Dec	−3.4 Dec	−14.1	10.2	11.9	1.3	6.60	na
Finland	+12.2 Dec	+11.3 Dec	+3.8	0.65	0.76	3.6	4.30	4.02
Iceland	−1.2 Jan	−3.2 Q4	−11.1	66.1	67.1	3.1	13.54	na
Ireland	+36.5 Dec	−11.1 Q3	−3.8	0.65	0.76	−0.5	4.40	4.20
Latvia	−7.2 Dec	−6.4 Dec	−17.3	0.46	0.54	1.0	6.37	na
Lithuania	−7.1 Dec	−5.3 Dec	−13.5	2.26	2.63	−0.6	4.79	na
Luxembourg	−6.1 Dec	+4.7 Q3	na	0.65	0.76	nil	4.40	na
New Zealand	−3.6 Jan	−10.2 Q3	−7.4	1.25	1.46	3.8	7.30	6.30
Peru	+8.4 Dec	+2.2 Q3	+1.3	2.87	3.19	1.4	5.25	na
Philippines	−5.0 Dec	+5.8 Sep	+4.6	40.8	48.8	−0.3	6.56	na
Portugal	−26.4 Dec	−19.8 Nov	−8.1	0.65	0.76	−2.6	4.40	4.27
Slovakia	−0.9 Dec	−0.8 Oct	−2.4	21.2	26.0	−2.3	4.22	4.25
Slovenia	−2.9 Dec	−1.9 Nov	−2.5	0.65	0.76	−0.7	na	na

*Merchandise trade only. †*The Economist* poll or Economist Intelligence Unit forecast. ‡Dollar-denominated bonds. §Unofficial exchange rate.

Sources: National statistics offices and central banks; Thomson Datastream; Reuters; JPMorgan; Bank Leumi le-Israel; Centre for Monitoring Indian Economy; Danske Bank; Hong Kong Monetary Authority; Standard Bank Group; UBS; Westpac.

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Markets

Mar 6th 2008
From The Economist print edition

Markets

	Index Mar 5th	% change on one week	% change on Dec 29th 2006 in local currency	% change on Dec 29th 2006 in $ terms
United States (DJIA)	12,255.0	–3.5	–7.6	–7.6
United States (S&P 500)	1,333.7	–3.4	–9.2	–9.2
United States (NAScomp)	2,272.8	–3.4	–14.3	–14.3
Japan (Nikkei 225)	12,972.1	–7.5	–15.3	–9.0
Japan (Topix)	1,263.9	–7.4	–14.4	–8.0
China (SSEA)	4,503.6	–1.0	–18.4	–16.2
China (SSEB, $ terms)	313.9	+1.2	–16.5	–14.2
Britain (FTSE 100)	5,853.5	–3.7	–9.3	–9.4
Canada (S&P TSX)	13,603.3	–1.3	–1.7	–2.0
Euro area (FTSE Euro 100)	1,164.5	–4.3	–15.3	–11.6
Euro area (DJ STOXX 50)	3,684.5	–4.5	–16.3	–12.5
Austria (ATX)	3,772.0	–4.7	–16.4	–12.7
Belgium (Bel 20)	3,736.0	–1.4	–9.5	–5.5
France (CAC 40)	4,756.4	–4.3	–15.3	–11.5
Germany (DAX)*	6,683.7	–4.5	–17.2	–13.5
Greece (Athex Comp)	4,053.1	–6.1	–21.7	–18.3
Italy (S&P/MIB)	33,443.0	–3.2	–13.3	–9.4
Netherlands (AEX)	444.4	–3.9	–13.8	–10.0
Spain (Madrid SE)	1,404.5	–3.6	–14.5	–10.7
Czech Republic (PX)	1,511.5	–3.6	–16.7	–7.5
Denmark (OMXCB)	409.1	–2.5	–8.8	–4.7
Hungary (BUX)	22,907.6	–3.9	–12.7	–12.1
Norway (OSEAX)	492.2	–1.8	–13.6	–8.8
Poland (WIG)	46,772.3	–4.4	–16.0	–10.5
Russia (RTS, $ terms)	2,042.4	–2.6	–13.0	–10.8
Sweden (Aff.Gen)	303.9	–3.6	–10.7	–5.9
Switzerland (SMI)	7,338.8	–5.7	–13.5	–5.5
Turkey (ISE)	43,468.0	–6.0	–21.7	–24.1
Australia (All Ord.)	5,471.6	–6.3	–14.8	–9.0
Hong Kong (Hang Seng)	23,114.3	–5.6	–16.9	–16.8
India (BSE)	16,542.1	–7.2	–18.5	–20.2
Indonesia (JSX)	2,639.7	–3.7	–3.9	–0.7
Malaysia (KLSE)	1,280.2	–7.0	–11.4	–8.0
Pakistan (KSE)	14,957.8	–0.4	+6.3	+4.2
Singapore (STI)	2,910.8	–5.9	–16.0	–13.0
South Korea (KOSPI)	1,677.1	–2.5	–11.6	–12.7
Taiwan (TWI)	8,484.0	+0.3	–0.3	+4.8
Thailand (SET)	825.0	–0.8	–3.9	+2.6
Argentina (MERV)	2,182.1	+0.7	+1.4	+1.4
Brazil (BVSP)	64,629.0	–1.3	+1.2	+7.9
Chile (IGPA)	12,980.9	–4.2	–7.8	+2.5
Colombia (IGBC)	9,005.9	–4.2	–15.8	–9.0
Mexico (IPC)	29,277.3	–3.8	–0.9	+1.1
Venezuela (IBC)	34,897.6	+0.3	–7.9	–59.1
Egypt (Case 30)†	11,401.3	+1.4	+8.9	+9.8
Israel (TA-100)	1,011.2	–3.0	–12.4	–6.3
Saudi Arabia (Tadawul)	9,984.6	–3.0	+25.9	+25.9
South Africa (JSE AS)	30,519.8	+1.5	+5.4	–7.2
Europe (FTSEurofirst 300)	1,301.2	–4.2	–13.6	–9.8
World, dev'd (MSCI)	1,445.0	–3.6	–9.1	–9.1
Emerging markets (MSCI)	1,142.2	–4.1	–8.3	–8.3
World, all (MSCI)	367.1	–3.6	–9.0	–9.0
World bonds (Citigroup)	775.6	+2.0	+6.2	+6.2
EMBI+ (JPMorgan)	435.6	+0.3	+0.5	+0.5
Hedge funds (HFRX)	1,320.6	–0.6	–0.7	–0.7
Volatility, US (VIX)	24.6	22.7	22.5	(levels)
CDSs, Eur (iTRAXX)†	110.9	nil	+213.5	+227.4
CDSs, N Am (CDX)†	172.3	+18.3	+117.2	+117.2
Carbon trading (EU ETS) €	21.2	–0.3	–4.5	–0.2

*Total return index. †Credit-default swap spreads, basis points.

Sources: National statistics offices, central banks and stock exchanges; Thomson Datastream; Reuters; WM/Reuters; JPMorgan Chase; Bank Leumi le-Israel; CBOE; CME; Danske Bank; EFX; HKMA; Markit; Standard Bank

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Travel and tourism

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The World Economic Forum's 2008 Travel and Tourism Competitiveness Report covers 130 countries. It examines the attributes that make it attractive to invest in each country's travel industry. The report ranks countries in three broad categories: regulation; infrastructure; and human, cultural and natural resources. Switzerland scores well on all counts and retains its top rank from last year. Australia, Spain and Sweden have vaulted into the top ten. France attracts the most visitors each year, but as fertile ground for a travel industry, it ranks only 10th. Despite having the most World Heritage Sites, Italy is placed in a lowly 28th position—partly because of the restrictions it places on foreign ownership.

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